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Outdoor Photographer

Scenic Wildlife Travel Sports February 1996

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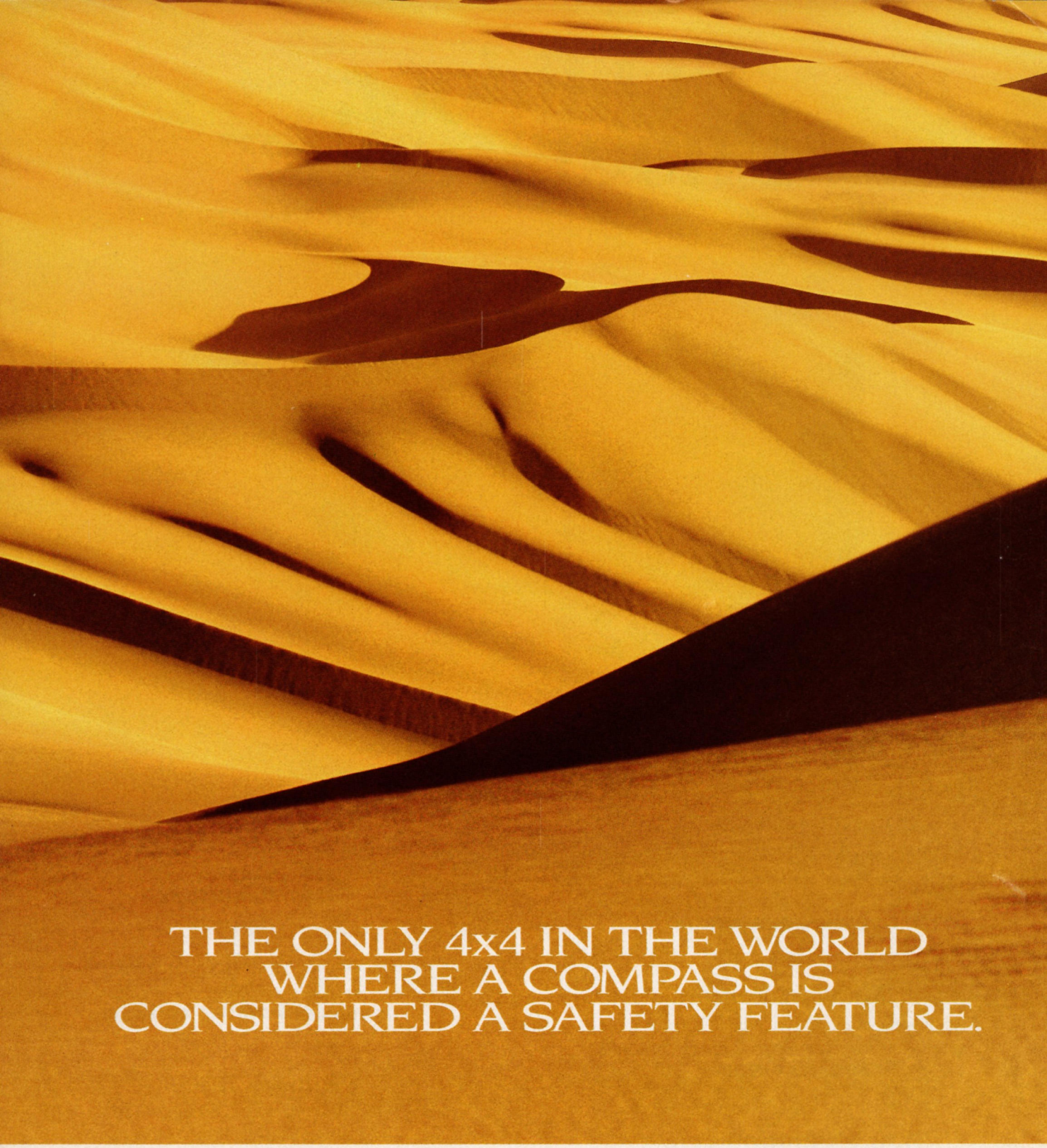

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Jan./Feb. 1996 Scenic Travel Wildlife Sports Vol. 12 No. 1

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(1) I hit Mt. Evans too late to catch the natural light that would make those ancient pines come alive. I decided to let the N70's™ remarkable built-in speedlight help create the light I wanted.

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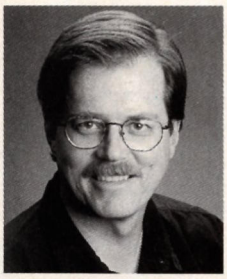

Every day, the news media covers some terrible event, some horrible killing or the latest scandal among the rich and famous. If you only read the daily newspapers, or worse, only watched the evening news, you could have a pretty sour view of our world. Statistics today show that crime is actually decreasing in many areas, yet surveys indicate most people think it's increasing. That's not hard to understand when the evening news spends 10 minutes of coverage on an unfortunate murder and crams everything else into the time left around sports and weather.

OUTDOOR PHOTOGRAPHER is a sign that all isn't so terrible in the world. Our contributors share a wonderful, awe-inspiring (instead of awful) view of life around us. The world has much to offer, much to enjoy, much to be thankful for. Photography helps us all share the wonder of a colorful songbird, the glory of a sunrise, the richness of life outside.

GARY ALAN NELSON

In this issue, you'll rediscover the beauty of winter. The world doesn't always have to be dramatic to offer us stunning imagery. For example, many people pass over the flat Midwest as they search for the dramatic landscape. Yet, as you'll see, Gary Alan Nelson (a sturdy Midwest name) captures superb photographs of this land, winter landscapes of quiet scenes and strong forms and colors.

DAVID MIDDLETON

Also in this issue, you'll find some great events to think about. Not celebrity events of doubtful importance, but a selection of nature's events throughout the year. David Middleton offers us everything from the time of spring-blooming wildflowers in the Great Smokies to the best months to photograph polar bears. So get out your calendar and maps and start planning your year.

Of course, we can't ignore the unpleasant things of the world. The natural world is very fragile and easily harmed by a careless society. As responsible outdoor photographers, we need to be mindful of this and do what we can.

Sometimes our photography gives us the chance to challenge the way some would harm the natural wonders of our planet. Christopher Broughton offers tips on better black-and-white landscape photography and takes time to remind us how fragile the desert is and how some would ignore this for short-term gain. Karl Ammann documents the slaughter of apes for rich people's plates in parts of Africa and lets us know the chilling results.

Still, these challenges can be faced and met. Through the positive appreciation of our world from our contributors, we find a world well worth our attention and care.

—Rob Sheppard, Editor

COVER SHOT

Photographers: Tom and Pat Leeson
Subject: Red fox, Prince Albert National Park, Saskatchewan, Canada
Equipment: Nikon F4, Nikkor 300mm *f*/4, Fujichrome 100
Exposure: 1/250 sec. at *f*/5.6
Situation: This red fox had been observed regularly hunting along the shore of Waskesiu Lake. When we first spotted the fox, it seemed to be checking the shoreline for scraps of fish, which may have been dropped by several bald eagles that frequently perch in the trees in this area. Even though the lake froze solid and the bald eagles left, the fox still came by at about the same time everyday, probably looking for mice who made trails and tunnels in the snow at the shoreline.

To get a low-angle shot, Tom laid on the frozen lake and waited. Undoubtedly used to the crowds of people at the park in summer, the fox wasn't particularly afraid. It seemed somewhat curious about this prone object out on the ice.

Tom did this everyday for a week. At times, the temperature was quite cold (minus-30 degrees F) and his clothes would actually freeze to the ice. As the temperature rose and fell, the ice would loudly crack and crash as it solidified across the lake. One crack ripped right in front of Tom as he laid waiting for the fox, giving him quite a start. You never know what adventures might come to the wildlife photographer!

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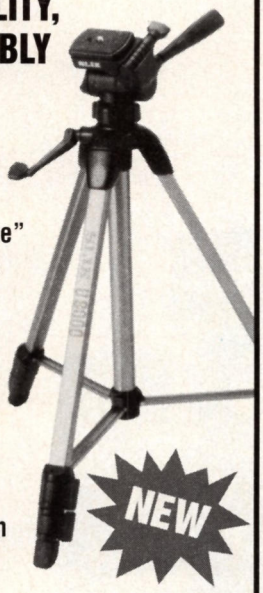

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LETTERS

OP Aggravation?!

If *OUTDOOR PHOTOGRAPHER* didn't exist, I wouldn't have to renew it, and for another 10 months I'd be free from aggravation. Starting four years ago as a hobby and fun-filled way to pass time, I entered into photography. Phooey on this fun. Every time I think I'm getting better, along comes another issue of *OP* with so many more tips on how to do it even better. There's so many good tips that I hope I can take advantage of them while my mind still functions and I'm still alive. Thanks for the enjoyment I get leafing and releafing through the pages of this great magazine.

Lester Dworetsky
Jacksonville, Florida

Equipment Queries

I'm pursuing my interest in nature photography in the areas of landscapes and wildlife. What's the ideal equipment package for this venture?

Kelly Cayer
Winter Springs, Florida

We get many questions like this and honestly can't give a simple answer. Choice of equipment must be based on an individual's personal needs, both in terms of technical and personal questions. A camera perfect for one person may be terrible for another. Our editor will choose a lightweight, compact SLR over a larger, more durable, but distinctly heavier model. Many of our contributors would never be caught without the heavier one. Some people will find the controls on a particular camera a joy to use, while an equally sophisticated photographer will hate them. You have to look at what features you really need, compare that to cameras in your price range to see how they specifically meet your needs (don't be swayed by exciting new features that really don't fit your situation), then handle the camera to see how well it feels in your hands, how easy it is to use the controls and what the viewfinder is like.

Antarctica Revisited

Frans Lanting's "Freezing Moments" column in November stirred my memory of one of the most consuming books I've ever read, *Endurance,* by Alfred Lansing. The book contains 15 photos by James Francis Hurley, the official photographer for this Antarctic expedition. Shortly after arriving in Antarctica, the ship was trapped, then crushed by polar ice. Lansing tells an incredible tale of how the exploration team endured the hardships imposed by this inhospitable environment for over 18 months. It's a story of heroism, agony, disappointment and determination. I recommend this book to *OUTDOOR PHOTOGRAPHER* readers as fascinating reading (it's out of print so look for it at the library) and look forward to Frans Lanting's work in tribute to Hurley.

Ray Novy
La Grange Park, Illinois

Moose And Meter Names

If you read *Newsweek* this past fall, you might have noticed that moose are called elk in Finland. Or the Finnish would probably say elk are called moose in the United States. Anyway, in Canada, home of contributor Daryl Benson, he calls his Gossen meter the Luna-Six 3 (as described in the November article on painting with light outdoors). In the United States, it's the Gossen Luna-Pro S and is distributed by Bogen Photo Corporation, (201) 818-9500.

Belt Pack Correction

In November, we reported on the nifty Modular Photo Fanny hipbelt pack from SunDog. But we mistakenly ran a photo of another of its great hipbelt packs, the Modular Belt Combo. The Modular Photo Fanny has a bigger main compartment to hold an SLR with two to four lenses. For more information, contact SunDog at (800) 634-0005.

Pribilofs Correction

In November's "Wildside" column, the number for TDX tours was incorrect. To get more information on Reeves Airlines and TDX Tours, call (800) 544-2248.

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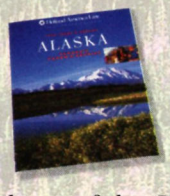

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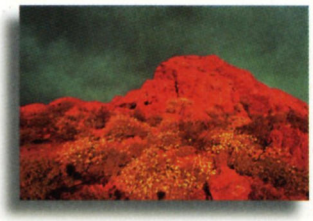

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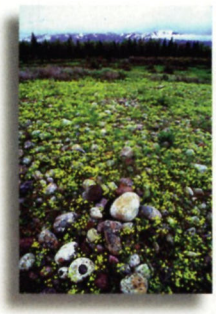

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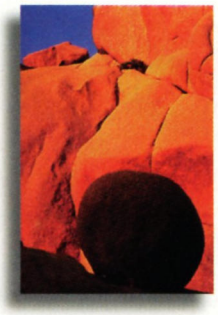

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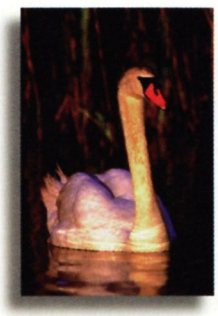

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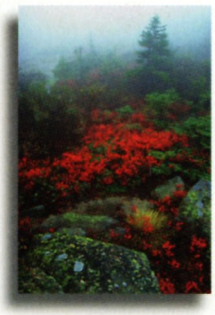

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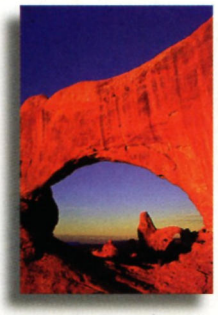

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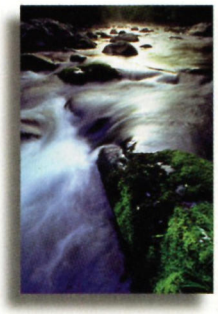

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Knowing When Less Is More

Too much equipment can interrupt the creative process

BY GALEN ROWELL

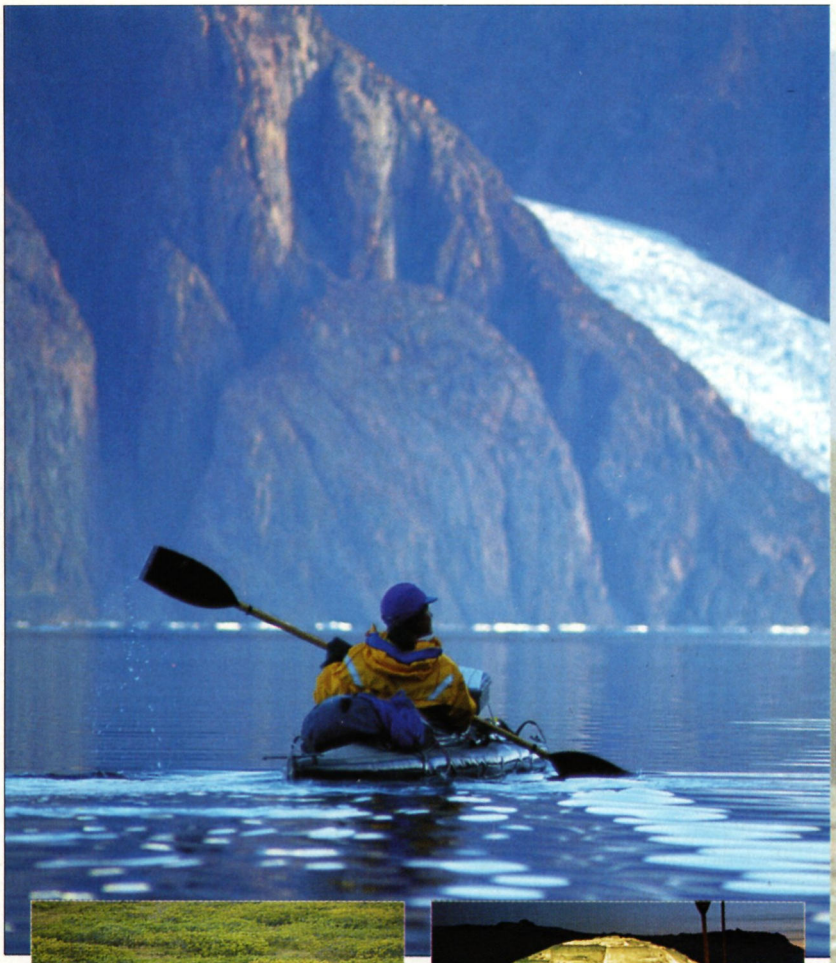
How much equipment do you really need to bring back great outdoor photographs? I've seen talented photographers who followed an obsession to own all the latest stuff and take it to every location burn out after a few years. Much of my genuine excitement of being out in the natural world with a camera is due to carefully moderating my gear for each situation, even if it sometimes costs me an image I dearly want.

I recently packed just five pounds of camera gear in my carry-on luggage for flights to major cities for a book promotion. On a free morning, I drove into the country and shot several rolls of wet maple leaves oozing saturation amidst old-growth evergreens. As I jumped back into my rental car, I congratulated myself for making images every bit as fine as I could have shot with the five cases of gear that some pros always take on location.

Around the next bend, my smug satisfaction vanished. An even better foliage situation across a brushy roadside ditch cried for either a much longer lens than my trusty 24mm *f*/2.8 or a much taller tripod than my 026 Gitzo that extends less than waist high with good stability.

As I berated my laziness for not checking at least one bag with a bigger tripod and personal effects, which would have freed me to carry on my normal bag with six lenses plus accessories, I realized that all my problems could have been solved by an item light enough to carry in one hand onto the plane or down a trail. Out of habit, I had brought my short Gitzo aluminum tripod instead of my recently purchased Gitzo 1226 Mountaineer. Made out of ultralight carbon fiber, this four-pound wonder extends to eye level with the stability of a metal 10-pounder. I left it home because I had pigeonholed it in my mind as a lighter big tripod, rather than a taller and more stable light tripod. The difference is significant.

For nearly a year after its introduction, I resisted spend-



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ing over $500 just to get a set of lighter legs without a ballhead. I stuck with my metal two-pounder for casual use and my seven-pounder for more serious work. I have yet to see a metal unit between these weights that extends near eye level with sufficient stability to consistently make sharp images with heavy zooms or big telephoto lenses in low light.

The decisive moment came as my wife, Barbara, began packing for a long trek through the Peruvian Andes. She wondered if she should take her light or heavy tripod. She thought about taking both because she wanted a light one for the trail and a more stable one for important shots close to camp or a vehicle. Then she remembered seeing the Mountaineer at a photo show. She had been impressed by its light weight, sturdy legs that flexed much less than equal-sized aluminum ones and improved collars for easier operation. When I confided that I was thinking of bringing two or three Gitzos for similar reasons, we decided to make our biggest photo equipment expenditure of the year: two Mountaineers at once.

At first, I kept my old-standby Arca-Swiss ballhead. I switched only after I shot critical comparisons against Barbara's lighter and more compact Kaiser ballhead specially modified with an Arca-style quick-release that we bought from Kirk Enterprises, (800) 626-5074. I found no sharpness difference because the Kaiser has an equally thick support shaft, with only slightly reduced smoothness of motion due to its smaller ball.

The world's strongest tripod won't stop Nikon's ultra-sharp but hefty 80-200mm *f*/2.8 zoom from giving fuzzy pictures due to camera vibrations at slow shutter speeds because it lacks a tripod collar to center the weight. Several aftermarket brackets solve the problem. For Peru, I gave up on my older and heavier Kirk bracket in favor of a seven-ounce model from F & L Photo, (912) 925-4675, that saves considerable weight and hassle. It fits Arca release systems, rotates 360 degrees, stays on the lens when it's changed and fits the tight lens compartment in my camera bag. Since then, I've tried Kirk's new eight-ounce EZ-360 model with comparable features and a bit more stability.

The $2,000 worth of tripods, ballheads and lens mounts we acquired before our long trip to Peru more than paid for themselves within weeks after our return in stock sales from results far beyond our expectations. Not only did we significantly up the number of critically sharp "keepers" per roll, but we also found ourselves venturing farther afield to make creative images that we might not otherwise have bothered to try.

One unexpected benefit came in subfreezing weather. My hand carrying the bare tripod actually stayed warmer than my empty hand—quite the opposite of holding an aluminum leg that sucks away heat like ice. In the final analysis, the weight savings of the more rigid carbon-fiber legs should be compared, not only to similar-sized metal legs, but also to the two or more tripods I often brought

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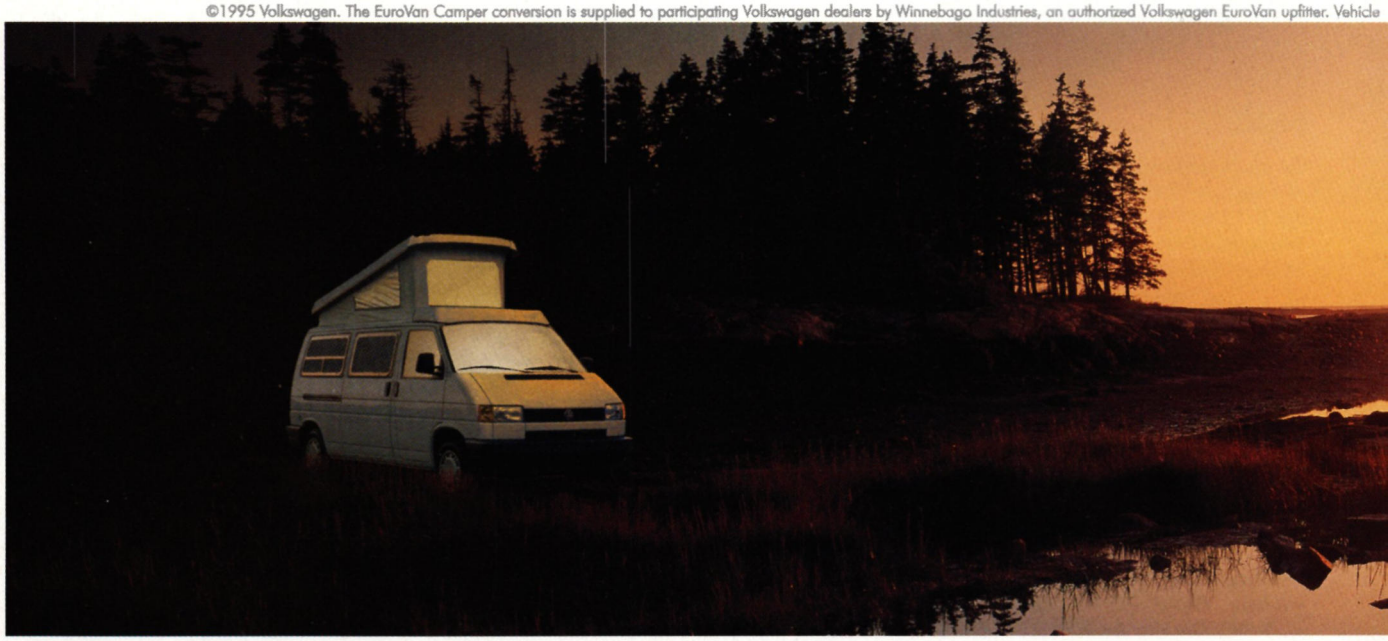

along on longer trips in the past.

This latter point helps answer an oft-asked question. If weight is so important to me in the wilds, why do I carry a Nikon N90s or F4 instead of one of the new lightweight SLRs on the market? Because to have confidence that I can bring back the goods for myself or on a professional assignment, I don't need to bring two of them. Of course I take an extra camera body on any long overseas trip, but on shorter, participatory adventures where weight really counts—day trips near home or side excursions during exotic journeys—I want to carry just one camera I can trust.

After more than 50 foreign expeditions to the world's most remote regions, I have yet to have a problem significant enough to stop a Nikon N90s or F4 from giving me well-exposed pictures, while I have yet to lead a foreign photo trek where some lower-end SLR didn't expire in the hands of a grief-stricken participant. I've seen virtually no full mortalities in top-end pro cameras. There must be exceptions that some readers will undoubtedly feel compelled to relate, but not enough to disprove the general rule that pro cameras give pros the dependability they pay for.

To accomplish this goal, both top-of-the-line Nikon and Canon units forsake light weight for sturdy reliability. While I wish that Nikon would introduce an ultralight SLR body like Canon's Rebel X (which I've used with guarded success on recreational runs and scrambles where I'd have left my heavier pro camera body behind), I'm not holding my breath for the SLR equivalent of my carbon-fiber tripod to appear any time soon.

When an artist is directly involved in an interpretive personal experience...too much equipment interrupts the flow of emotional response that's the essential human element communicated in the best nature photography.

Expensive 35mm point-and-shoots that combine light weight with reliability severely limit creative options, such as lens choices and positioning of graduated filters. I've made some technically perfect photographs with point-and-shoots, but as a group my best results clearly lack the creative breadth and consistency of images seen and composed through the lens.

Knowing when less is more—and when it isn't—is more important for consistent success in participatory outdoor photography than in traditional journalistic or documentary coverage. When an artist is directly involved in an interpretive personal experience, whether it be climbing Everest or walking through a field, too much equipment interrupts the flow of emotional response that's the essential human element communicated in the best nature photography. Yes. Little things do mean a lot. **OP**

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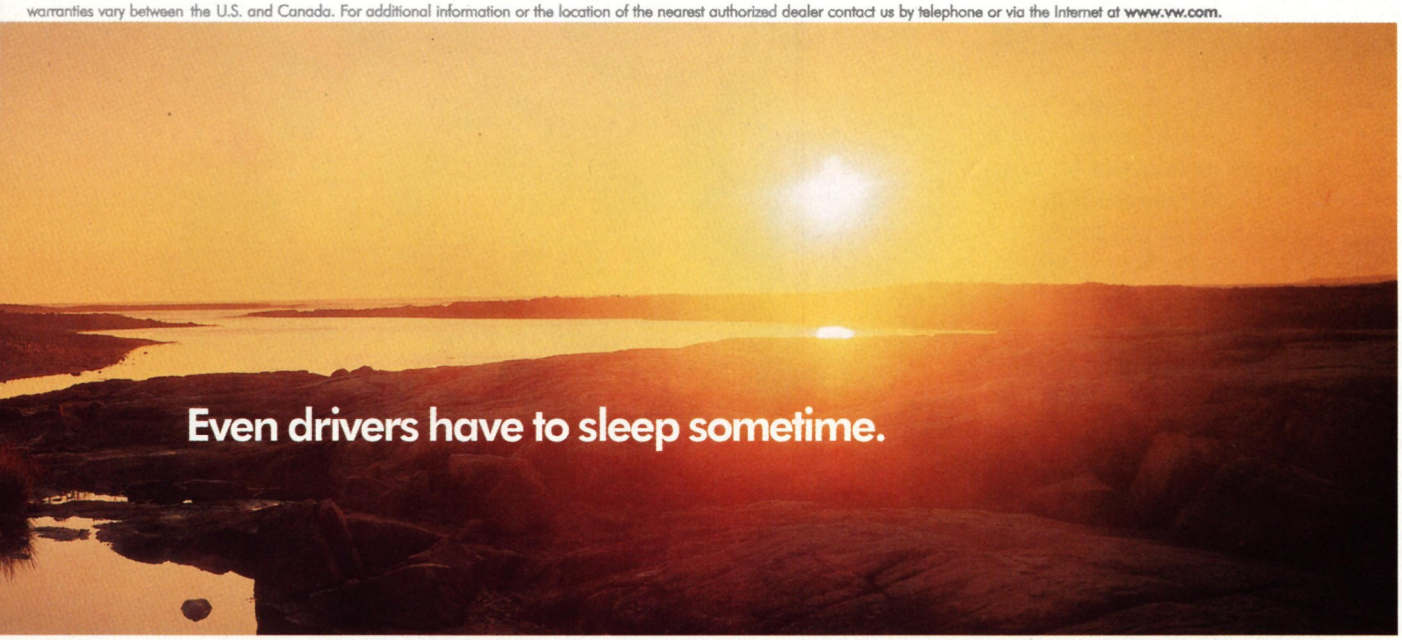

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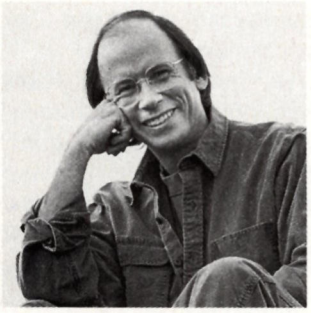

Emulsion Transfer

A new technique brings home the fragile nature of existence

BY DEWITT JONES

In hot water. Literally. There was my photo, its emulsion bubbling off its Polaroid backing. I quickly submerged it in cold water and began to gently pull on the image. Soon I had the emulsion floating free. Then it rolled up and looked all the world like a multi-colored jellyfish.

Now what? I knew it had the fragility of a soft contact lens. I gently grasped a corner, slid a sheet of watercolor paper under it and pulled the paper out of the water. The emulsion unraveled to reveal a wrinkled, transparent medium with my photograph in it. Yes! The emulsion transfer process gave me the feeling I had when I took the image in an old cemetery.

I had been wandering alone through a graveyard. The headstones hinted at the stories of those who rested there. People like me, with hopes and dreams, successes and failures, good times and bad. At one time, they were bustling about living their lives. Now these markers were all that served to remind us of their lives.

Dying and wilted flowers marked many of the plots, but a cluster of maroon roses in full perfect bloom caught my eye. I wandered over for a closer look—ceramic blossoms. Someone obviously wanted flowers that would be around for more than a day or two.

I shoved my 20mm lens deep into the heart of the flowers, making them the focal point of the photograph. I liked the final result, but it still didn't give me the feeling of impermanence and fragility I had experienced in the cemetery. Then I happened on this amazing technique using Polaroid film: emulsion transfer. The resultant transparent, almost cracked-looking image gave me the feeling that

inspired the original image.

Like Polaroid image transfer, emulsion transfer can best be learned by taking a class from someone skilled in the technique. For information on classes conducted by our teacher, Kathleen Thormod Carr, please see "Travel & Workshops" in this issue. For classes in your area or further information on the emulsion transfer process, call the Polaroid Customer service hotline at (800) 343-5000.

The process is fairly simple, though it sometimes can be hard to deal with the jellyfish-like consistency of the emulsion. Patience wins out, however, and the images are certainly worth it. Here's a brief overview of the process.

Start with your own 35mm transparencies and a Vivitar or Daylab slideprinter. (They're like small enlargers that expose slides onto Polaroid 669 film. The Daylab can also use 4x5 and 8x10 Polaroid film for making larger transfers.) You'll also need a hair dryer, contact paper (the plastic kind with adhesive backing used for covering shelves), two trays for water, a thermometer that goes up to 160 degrees F (a meat thermometer is good; darkroom thermometers don't go high enough), an acetate sheet (like that used for copying overhead transparencies), a soft rubber roller, watercolor paper, Polaroid 669 film and protective spray coating such as McDonald's Pro-tectacote. Optional: household ammonia.

Tear the watercolor paper into sheets a little larger than the Polaroid film. I usually tear a 30x40 sheet into 16 pieces. A twin pack of 669 film is 16 shots, so it works out perfectly. Load your slide and the Polaroid film into the slideprinter and make a print. Dry the print completely with a hair dryer.

Now, stick contact paper on the white back of the print. This will keep the backing from dissolving in the hot water. Submerge the print in a tray containing hot water at 160 degrees F for four minutes. (Optional: Place a few drops of ammonia in the hot water. It can help the emulsion peel off more easily.) As it's heating, you may notice the emulsion getting bubbles in it. That's normal. Using photo tongs, or something besides your hands, keep the print submerged, being careful not to touch the emulsion.

After four minutes, remove the print from the hot water tray and place it in the cold water tray. Using your fingers, peel the emulsion away from the paper substrate. Discard the paper backing.

Now you have your very own colored jellyfish. Grasp it by a corner, slide a sheet of watercolor paper under it (while it's still in the tray of water) and ease both out of the water. Rearrange it on the paper by resubmerging until you're satisfied. Pull the print-on-paper out of the water and manipulate wrinkles using a wet Q-tip. Caution: The emulsion is fragile, so keep it moist while moving it around. If it tears, move some emulsion to conceal the tear. When you're finished manipulating the emulsion, *gently* roll over the completed print with a wet roller to flatten the wrinkles. Spray with protective coating when dry.

Experiment with different surfaces. Emulsion can be transferred to tile, glass or textured handmade papers. When using these surfaces, use an acetate sheet to lift the emulsion out of the cold water bath. Many handmade papers disintegrate in water and are too fragile to allow manipulation of the emulsion after it's placed on them.

Move the emulsion around on the acetate (again with a wet Q-tip) until you're satisfied with the final image. Place the acetate with emulsion face down on the surface to be used and roll the image onto the surface. Then peel the acetate back gently, leaving the emulsion on the new surface. (Note: The image will be reversed unless you flip the emulsion over in the cold water tray before removing it with the acetate sheet.)

Emulsion transfer is a wonderful technique. The feeling of delicate impermanence it gives to my images reflects back to me the impermanence of all things. I'm not frightened or saddened by my own impermanence, somehow. It may actually be the fleeting nature of my own existence that sometimes causes my heart to ache with the beauty I see before me. This reminder of my own fragility tells me not to waste a single, precious minute, to live with gratitude and mindfulness, to partake of life's banquet while I'm here. A friend sent me a card the other day that sums it all up: "This moment is a gift. That's why they call it a present." **OP**

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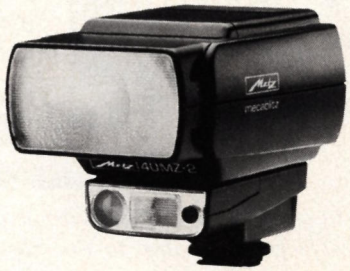

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Action Exposures

Metering Choices • Tripod Maintenance
Max Depth Of Field • Wide-Angle Challenges

BY GEORGE LEPP

Quick-Action Metering

In photographing wildlife, bracketing exposures isn't always possible due to the nature of the beast. Could you please discuss metering modes and your experience with them and how they might be employed within the line of fire?

P. Schillaci
Battle Creek, Missouri

Bracketing is seldom an option when photographing active subjects, wildlife being one of them. This is where the serious photographers are separated from the rest. My metering mode of choice is spot metering because it allows me to key my exposure to the subject. If the subject isn't properly exposed, the image won't usually work.

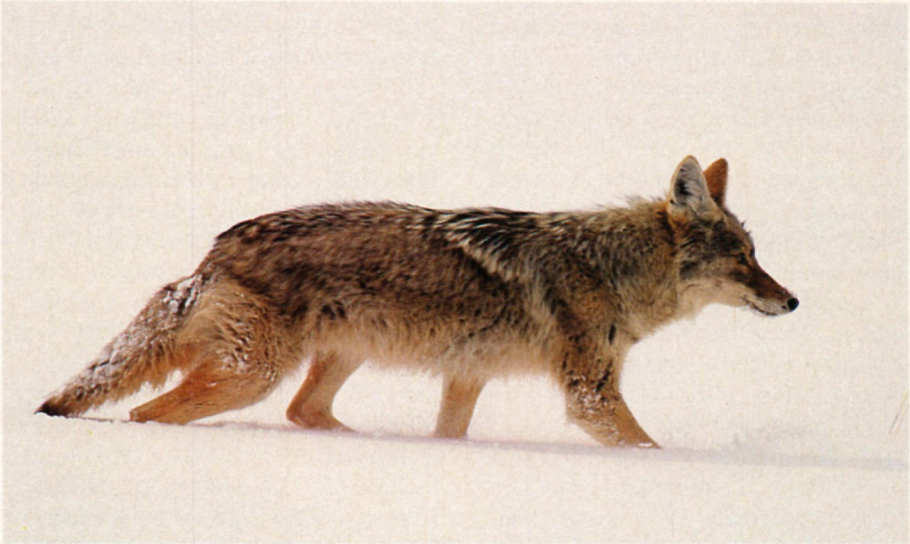
Some cameras offer a metering system that has the spot metering tied to the autofocus sensor being used to focus the subject. The spot metering can be used with one of the automatic modes such as aperture priority or even program mode. Manual mode can also be used, where a simple match-needle method of exposure in the viewfinder is employed.

Just remember that the meter wants to treat every subject as a middle tone. You must compensate for light and dark subjects. Add exposure to light subjects to keep them light instead of middle tone and decrease exposure to dark subjects to keep them dark.

How does all this equate to fast-moving subjects? My method is to determine the exposure prior to getting back into a fast-paced situation. I use all the tools the camera has to offer to set the exposure and lock them into the camera on manual. Unless the lighting situation changes, I stay with the set exposure. One of the reasons automatic exposures are sometimes wrong is that the exposure can be influenced by backgrounds or changing light in the scene that isn't part of the subject.

If the situation doesn't offer time to determine exposure, I'll allow the camera to make the decisions in aperture-priority mode using matrix or segmented metering. The engineers back at the factory didn't know all the lighting problems we might face, but they've got a lot of them covered.

In the image that accompanies this column, I spot-metered off the side of the coyote and let the snow go as light as it had to. The coyote was paralleling the road and the only way to get the shot was to stop the vehicle ahead of the animal and quickly set up to capture it as it continued past. A 600 mm *f*/4 lens was used with ISO 100 slide film.



Tripod Maintenance

I have a Bogen 3021 tripod, and the legs are beginning to "stick." Is it okay to use a WD-40-type oil or is there something better for the tripod? In general, what do you recommend in the way of regular maintenance—cleaning, preventing rust/corrosion and lubricating?

J. Gronholm
Saratoga Springs, New York

Outdoor photographers use and abuse their tripods more than any other group of photographers. We place them in all types of water and get dirt, mud and sand in every crevice. Just like all our other photographic tools, tripods need regular maintenance. Rinsing off any salt water is of first priority as steel and aluminum parts are subject to corrosion. Wipe fresh water off the exterior of the legs and spray a light coat of a lubricant like WD-40 on the parts. Wipe off this light oil as well.

On Gitzo tripods, be careful not to get the sprayed lubricant on or under the rubber rings that help tighten each leg. Lubricant under these rings will keep them from gripping. If you do get the spray on these areas, remove it with denatured alcohol or a spray cleaner like Windex. If the immersion has been substantial, disassemble the tripod and clean the inner parts with a light spraying of WD-40 and,

again, wipe it off. You can use the spray on areas like ballheads, but be sure to wipe it off and clean the area with denatured alcohol.

Specific maintenance for the Bogen tripods is to keep the sliding legs clean. Use the spray lubricant and wipe it off. Adjust the leg clamps using a 9mm thin-wall hex driver so that the legs slide easily, yet tighten (lock) with the lever. The tripod can be disassembled using the 9mm hex driver and a 3mm Allen wrench. These two tools should be in a maintenance kit that you carry in the field. Also, include some of the hand or baby wipes that are sealed pads with denatured alcohol.

Gitzo tripods also have a few specific maintenance needs. The legs need to be kept clean and given the same spray and wipe-down as the Bogen. After disassembling the tightening rings, clean off the grease that contains the grit from the threads and regrease with a white lithium grease, which any hardware store should stock. I've found small tubes of white lithium fishing grease. Be careful not to dent the legs of your tripod as the precision fit of the sliding legs will be hindered. With a little preventive maintenance, your tripod should last a long time and continue to work smoothly throughout its life.

Max The Depth

I'm a Nikon user and would appreciate your suggestion as to what one might use in the Nikon line to compete with the depth of field achieved with the Canon EOS 90mm tilt/shift lens.

B. Anderson
San Antonio, Texas

There's no question that the 90mm tilt/shift lens makes great use of the available depth of field. But do remember that there's no gain in absolute depth of field; it's a simple matter of using it more efficiently. As you tilt the front of the lens, the depth of field tilts along the same plane as the front optics. This is especially helpful with medium telephotos and when doing macro photography. To get the best results with conventional optics, the photographer will have to be very aware of the plane of the subject and keep it in line with the film surface. That means shooting subjects that are parallel to the camera. Don't forget to stop the lens down to its maximum *f*-stop to get all the depth possible from small apertures.

Nikon did make a 105mm bellows lens that could tilt when placed on one of the older Nikon PB bellows that had a tilting front standard. You'll have to look through the used equipment ads to find either of these accessories.

The 90mm tilt/shift is the hardest of the three Canon tilt/shift lenses to emulate because of the lack of depth of field when working with longer focal length lenses. I even add a 2X tele-extender to the 90mm to give me a tilting 180mm telephoto. My best use of the 90mm tilt/shift lens has been for carpets of wildflowers. The 90mm or 180mm (with the 2X attached) compresses the flowers in the image and the tilt ensures that the frame is sharp from back to front. This perspective and sharpness isn't possible in the 35mm format with any other lens or technique.

I know of several professional photographers who use Nikons that have purchased the Canon 90mm tilt/shift along with a less expensive Canon body to supplement their original system.

Distorting The Facts

I have a 20mm wide-angle lens that gives me buildings that are tilted inward. This happens even when the camera is parallel with the subject. I can't understand what I'm doing wrong.

E. Johnson
Staten Island, New York

The phenomenon you're experiencing is pin-cushion distortion due to the use of a lens that's an extreme wide-angle. A 20mm wide-angle lens is good for general architectural photography and great for landscape photography where perfectly straight lines aren't necessary. If you're going to be critical of straight lines and angles in your picture, I'd recommend a wide-angle lens of 24mm or 28mm. You'll find that serious architectural photographers often use view cameras where all the lines in the frame can be corrected. The main advantage of 35mm optics is the ability to use lenses that are beyond the usual where we do bend some lines and compress some perspectives.

No optic is perfect, and the more we know about any limitations of the lenses we use, the better we can work around them. **OP**

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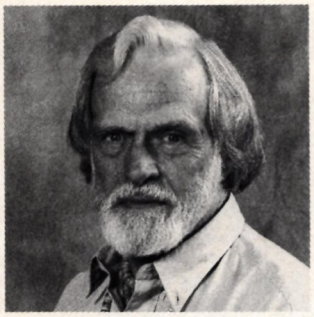


Wildlife Prairie Park

Elusive wildlife are easy to photograph at this midwestern park

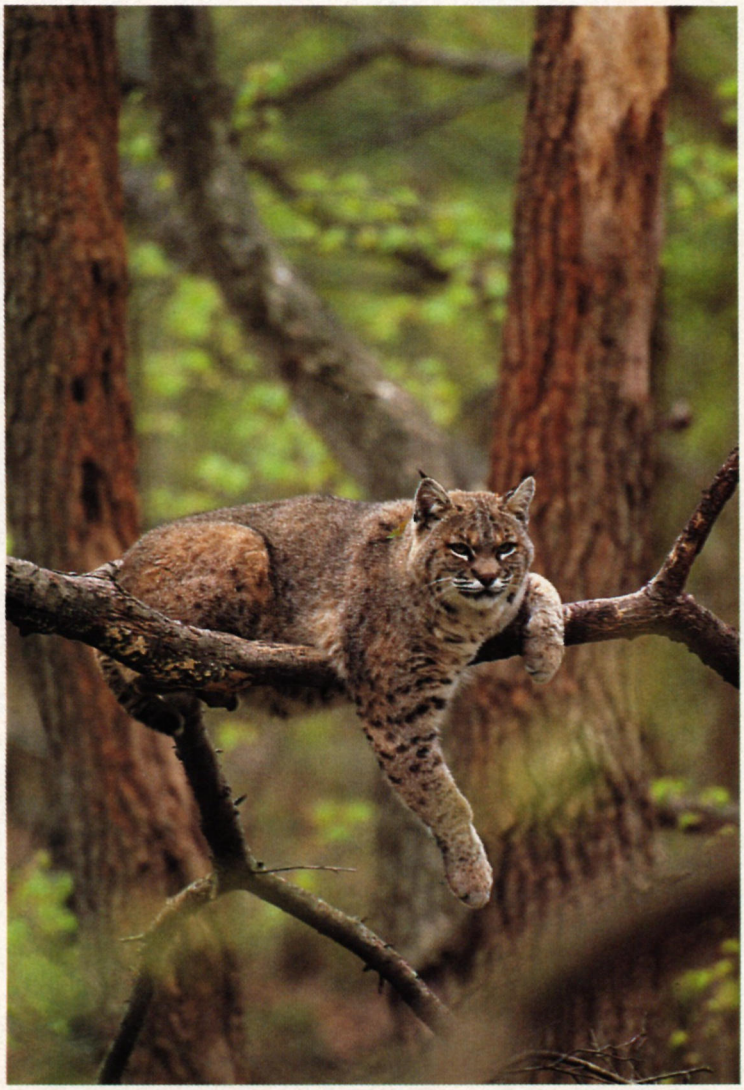
BY LEONARD LEE RUE III

Those of you who have read my column over the years know I've stated that 95 percent or more of all lynx, bobcat and cougar photos that you see are of captive animals. I find no fault with this; I've been doing it for years. As a professional, I need to have photos of all of the major game bird and animal species of not only this country, but from other countries as well. Some species are so furtive that it's next to impossible to photograph them in the wild. Rather than lose sales, I photographed all the species I could, wherever and however I could.

Most game farms charge $300 to $350 per day, and you usually have the opportunity to photograph two or three species in a day. I've discovered a place, however, where you can photograph bobcat, cougar and wolves for the price of admission, which is only $4 per person per day—the Wildlife Prairie Park.

Located on State Route 8, just 10 miles west of downtown Peoria, Ill., the park is an easy exit off Interstate 74. Park hours are 9 a.m. to 5:30 p.m. daily, May through September, and 9 a.m. to 3:30 p.m., October through mid-December and mid-March through April. There's something here for everyone at all times of the year, but fall and spring, after the trees have lost their leaves or before they leaf out in the spring, are the best.

The bobcats are easiest to find, as at least three of the five that the park has sleep up in the trees. Because the trees are on a steep hillside below the walkway, the bobcats are almost eye-level. From the bridge area, with a long lens, you can photograph the bobcats on the ground. In the summer, when the trees are leafed out, you'll need flash to overcome the deep shade.



The cougars are a hit-or-miss proposition. One usually sleeps in a tree, but excluding the back fence from your photos requires selective shooting positions.

The wolves are in a large compound just below the visitor center. By visiting in spring or fall, you have your best opportunity for photographs as the animals will be more active all through the day. As soon as the weather warms up, the wolves can only be photographed in early morning or late afternoon. All animals, captive or wild, avoid the heat of summer by spending the day in the shade. You'd do that, too, if you were wearing a fur coat year-round.

On Sundays, the park staff feeds the wolves at 1:30 p.m. Get there before the crowd so you can set up your tripod. The wolves are fed right in front of the viewing platform.

At 11:30 every morning, the park staff puts on a birds of prey seminar, and you'll have the opportunity to photograph different hawks and owls. Marge, the rehabilitator, does a great job; her birds are in excellent condition and she's most helpful. The birds have been injured, but are now healed. However, they must be worked with jesses on their legs, so you can't photograph the entire bird with

(Cont'd on page 96)

Nevada Wier: life without limits

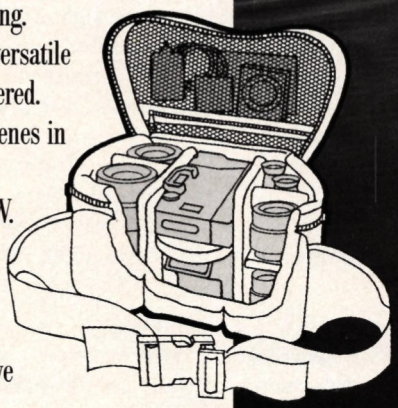
Nevada Wier loves to portray the remote, hidden corners of "this wonderous world", like this Intha leg rower fishing on Inle Lake, Burma.

Nevada Wier documents indigenous people of the world – under conditions that push her and her Lowepro camera bags beyond normal limits.

The former wilderness instructor and rafting guide loves Asia. Her favorite areas are remote, rugged and virtually inaccessible, due to snow, monsoon floods, foot deep mud and what Nevada kindly describes as extreme elements. She uses her cameras no matter what, because, "When conditions are at their worst, I have the best chance of creating a truly memorable image."

Yet Nevada can't take risks with her camera equipment. "I'm always far, far away from a camera repair shop."

Nevada believes Lowepro offers the best protection against intense weather, dust and arduous travel. "The Orion AW is my favorite for trekking. It's ideal – the most versatile bag I've ever encountered. For shooting street scenes in Laos and Cambodia, I like the Magnum AW. The detachable hip belt is useful. If anyone tries to take the bag, they have to take me too."



With camera protection always top-of-mind, Nevada really appreciates the all-weather cover. As she says, "Lowepro has saved my equipment countless times."

*Nevada relies on a **Lowepro Orion AW** (shown left) to protect her camera on treks in remote regions. She can use the Orion alone or with a daypack, and the top ensures that she always has a 'table' to work from.*

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McNeil River

Text And Photography By Michael Loomis

Location: Believe me, there's nothing like your first eyeball-to-eyeball contact with an Alaskan brown bear. There's no doubt about who the country belongs to or who's really in charge.

Alaska's McNeil River Sanctuary, on the Aleutian Chain near Katmai National Park, was established to protect the unusually large concentrations of bears that arrive each summer with the onset of the annual salmon runs. At McNeil, the bears come first. The current rules allow only 10 people at a time to go to the bear viewing areas for a four-day period. Access to McNeil is by a lottery conducted by the Alaska Department of Fish and Game each spring. This control makes McNeil a truly pristine area in which to watch and photograph Alaskan brown bears. The bears are habituated to humans and are amazingly tolerant of their presence. As many as 60 bears have been seen at the McNeil River Falls at the same time.

The hike to the viewing area is a moderately strenuous two miles across the tidal flats to the river mouth and up the river by trail to the falls where the bears, salmon and visitors congregate. There's probably no one with more knowledge of Alaskan brown bears than Larry Aumiller, the sanctuary director for the past 18 years. Either Aumiller or one of his assistants, Derek Stonorov or John Sisson, accompany you on your visits with the bears. Under Aumiller's supervision, there has never been a serious incident.

The best prices for float-plane access I found were via Homer, Alaska, on the southwestern tip of the Kenai Peninsula, about 230 road miles from Anchorage. A list of float-plane operators is available from the Department of Fish and Game by request.

Weather: It's unusually fickle and unpredictable on the Aleutian Peninsula, so you can never know what to expect. Be prepared for everything from dark, dreary and wet to fog to sun. Temperatures range from the 50s down to zero degrees F, and the winds from calm to blowing at more than 40 mph. Bad weather can delay your departure, so bring extra food. We were saved by one of our group who had an Alaska fishing license and donated a fresh-caught silver salmon to the larder.

Photo Experience: Your start to view the bears will vary due to the times of the tides. Pack camera equipment, rain gear, lunch and canteens in order to set out for a long day of bear viewing and photography. Hikes to the bear viewing areas are moderately strenuous (about four miles per day, with some walking on tidal mudflats, which will require hipboots). Recommended photo equipment is a 35mm SLR with an appropriate choice of lenses. On this trip I found the best all-around lens to be a 300mm *f*/4, but the bears are frequently fairly close, so my 80-200mm was useful, too. Many in our group of 10 brought camcorders. Tripods are recommended.

The bears aren't always at the falls. To test this theory, we once set up on a small island about a quarter-mile up from the river mouth, with a sandy beach and a comfortable grass-covered area facing up to the falls in the distance. Our wait was soon rewarded. A lone large male proceeded up the river passing within 20 feet of us. With only a quick glance of acknowledgment, he proceeded to go fishing, soon ate his fill and then wandered off. A female with two spring cubs spent an hour across the river (about 25 yards wide here) teaching the young ones the intricacies of catching salmon. In the early afternoon, we were treated to the sight of an extremely large female and three yearling cubs about half her size who spent nearly an hour catching salmon next to our island.

For more information and to request a permit (lottery) application, contact: State of Alaska, Dept. of Fish and Game, 333 Raspberry Rd., Anchorage, AK 99518-1599, (907) 267-2179. **OP**

BEST TIMES: Peak bear numbers are in the first few weeks of July, and the maximum number of visitors can be expected during these periods. Applications should be sent as early in the year as possible, to be received no later than April 1. There's an application fee of $20 (per person, non-refundable). If selected in the lottery drawing, you'll be notified by May 1 and an additional amount of $250 ($100 for Alaska residents) is due by May 15. Each party (maximum of three persons) can select two four-day time frames for consideration from June through August 25. If you're fortunate enough to be selected, there's a four-year moratorium on re-selection. Good luck in the next drawing!

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Journey Inward Bound with Lisl Dennis

Travel with Lisl as she opens her creative passport to the graphic, color-intensive imagery that defines her style. Lisl begins with an exotic, audio visual show on Morocco–prepping the senses for the inner journey in travel photography. Lisl is a contributing editor to *Outdoor Photographer*, and an author of numerous how-to books on photography, including her new book, *Traveler's Eye, A Guide to Still and Video Travel Photography*. She is the founder of the Travel Photography Workshop in Santa Fe. Lisl's program includes:

- Developing personal style
- Maximizing your tripod
- Seeing color and graphics
- Orchestrating lens use
- Ecotravel photography
- Overcoming photographic inertia
- Challenging social assumptions

Journey Out of Bounds with Nevada Wier

Follow Nevada as she travels off the beaten track, photographing far away lands, faces and customs. Nevada begins with an evocative, audio visual show on Vietnam that parachutes you into the realm of adventure travel photography. She shares her personal style in establishing cultural rapport and imparts technical tips to enhance your photographic experience. Nevada is a Fellow of the Explorer's Club, an Outward Bound instructor, an international outdoor guide, and author of *Adventure Travel Photography*. Nevada's program includes:

- Photographing people
- Understanding light
- Stretching your limits
- Traveling light and flexible
- Demystifying metering
- Film, fill flash and filters
- Capturing mood and moment

Lisl and Nevada welcome photographers at all levels, as well as travelers, adventurers, videographers, wanderers, and dreamers. The program is not limited to Canon and Kodak users.

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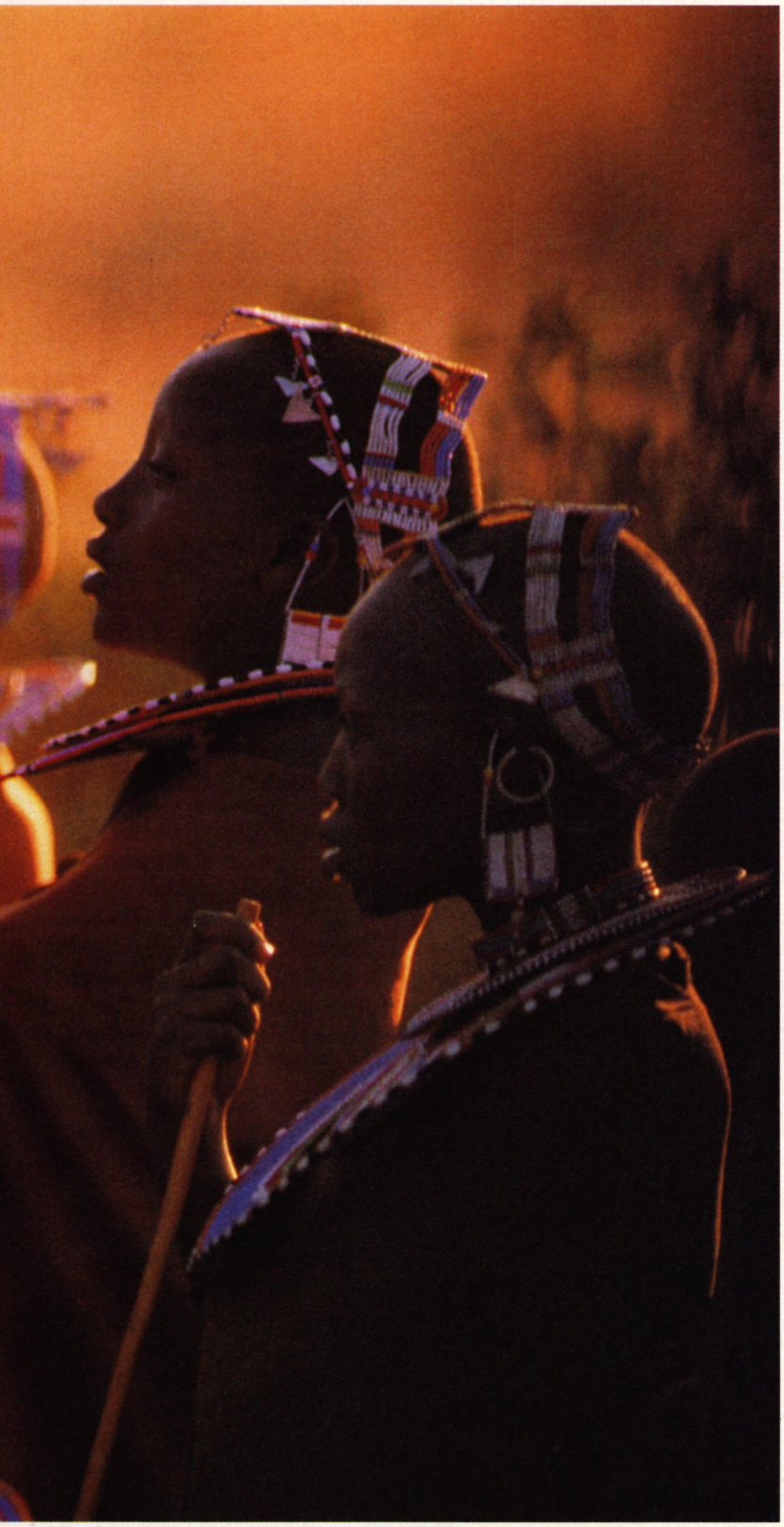
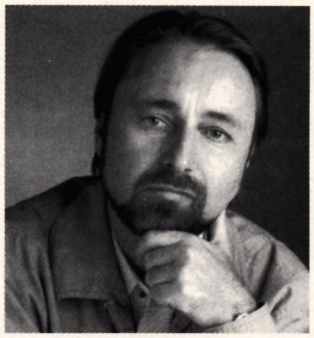
Tribal Circles





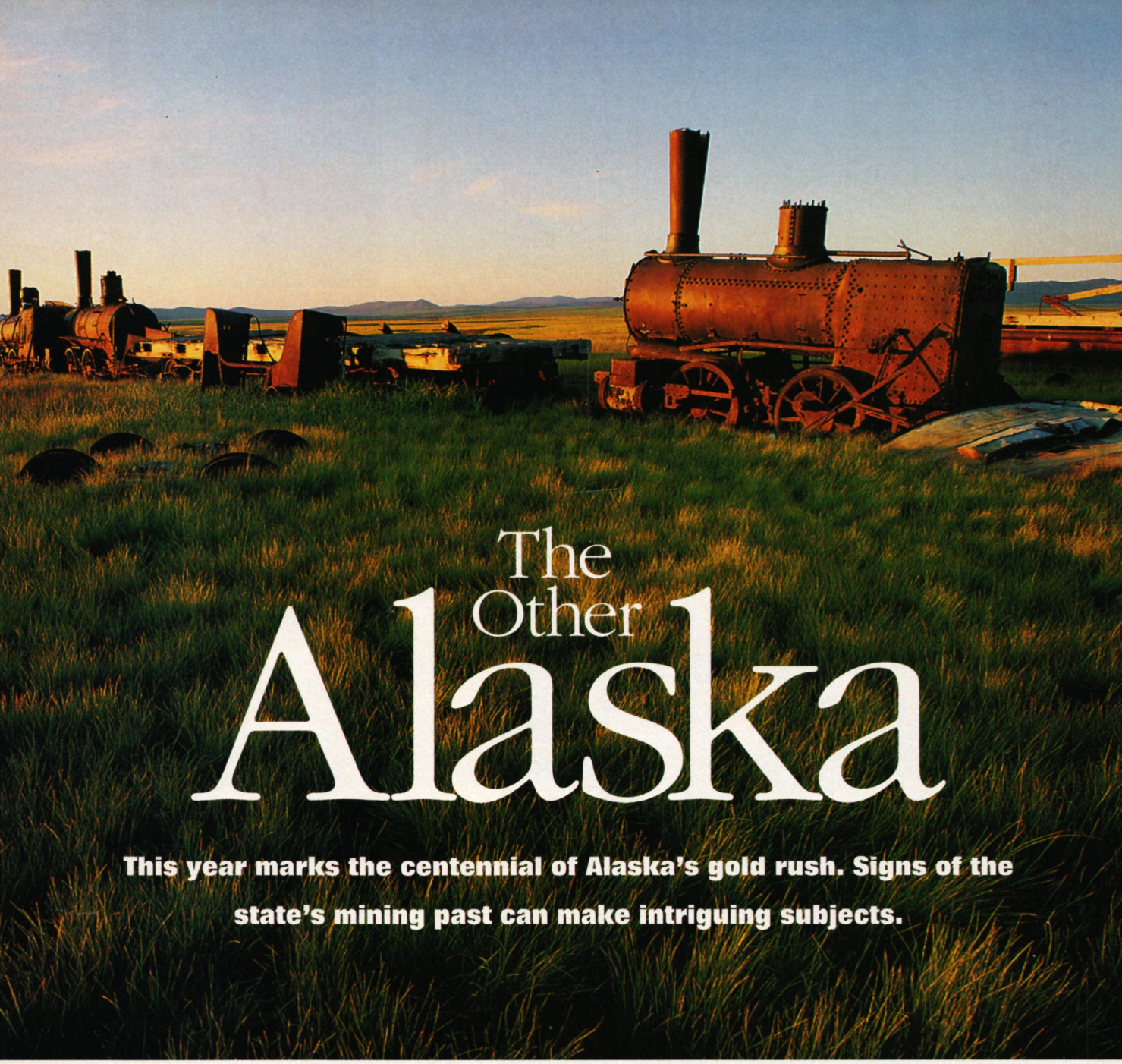
BY FRANS LANTING

The striking appearance and unyielding traditions of East Africa's Masai people have long been an irresistible lure to visitors from the modern world. Proud of their tribal lifestyle, most Masai see little reason to change their ways. By comparison, a photographer like myself who ranges the globe is someone who forever comes in from the cold—a professional stranger for whom a chameleon-like ability to adapt to new situations is essential.

One cloudless day, I attended a ceremony at a Masai village on the slopes of Ngorongoro in Tanzania. Among the hundreds of festively dressed guests, my companion and I were the only outsiders, and as such, the object of much curiosity. I had permission from the elders to photograph, but that hardly meant acceptance from the crowd.

My preferred approach is to get close and be part of the action. But here that didn't work. Whenever I drew near, faces turned my way, and I realized my very presence was changing what I had come to document. I backed off and switched from wide-angle to telephoto. With a 300mm lens mounted on a monopod, I could cover the action from the periphery without attracting attention.

Even so, hours passed before the whirl of movement and color around me began to make visual sense. Late in the day, when the harsh equatorial sun was finally fading to a more forgiving light, I recognized the image I'd been searching for. From a group of young women watching warriors dance I selected one for focus. With the lens wide open, the others around her, identically dressed, became a gentle, out-of-focus affirmation of her tribal identity. The symbolic shape of the event, the tribal circle, was echoed in the women themselves—the roundness of their faces, their ceremonial jewelry. Dust kicked up by dancers softened all contours. And no one was watching me, the outsider, looking in. **OP**



The Other Alaska

This year marks the centennial of Alaska's gold rush. Signs of the state's mining past can make intriguing subjects.

Text And Photography By Clark James Mishler

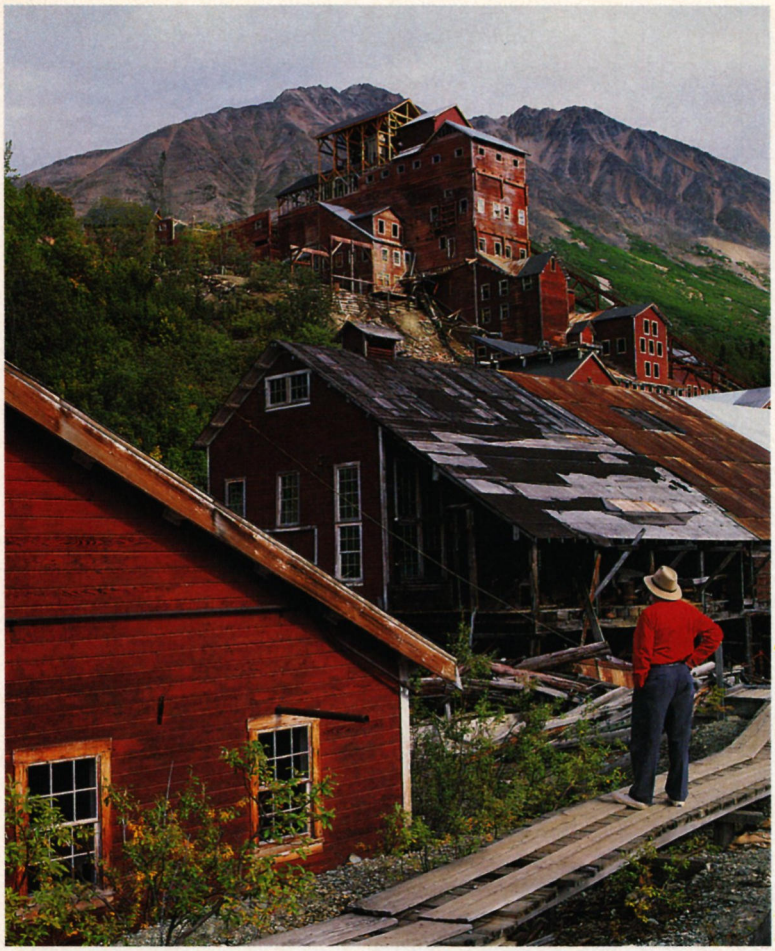
Gold! A hundred years ago, the mere mention of the word sent hordes of people into the rough wilderness of Alaska to seek their fortunes. Unforgiving cold, ever-present snow and ice and tough crooks and swindlers took their toll on visitors, but the lucky ones found gold and other valuable minerals.

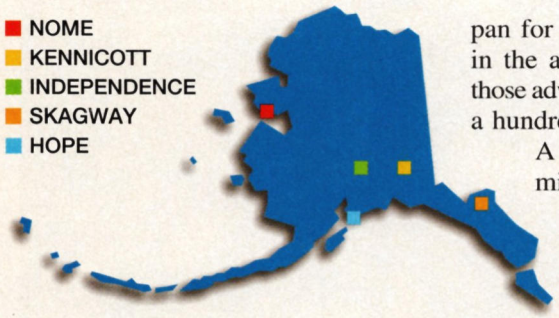
Today, you can visit Alaska for the scenery and wildlife, then gain an appreciation and some great photos of the other side of the state, the wild frontier that was Alaska a century ago.

Alaska has designated 1996-2005 for celebrating its gold rush history. In 1896, gold was found in quantities never before seen in the Yukon, and the great Klondike Gold Rush began. In just one year, more than 60,000 hopefuls struggled to get to the plentiful gold fields, and a few got rich.

They came to Alaska in crowded ships that docked at Skagway or Dyea. In Skagway, you'll find whole streets of beautifully restored historic buildings, complete with boardwalks and window displays just as they were during the gold rush times. Skagway also has a huge number of gold rush artifacts. This is probably the best place to see and photograph what it was really like in those times. Summer can be crowded, so a trip before Memorial Day or after Labor Day offers more photogenic streets.

Although Dyea is but a ghost town now, it's the start of the famous Chilkoot Trail to the Klondike gold





fields. This arduous 33-mile trek through the rugged coastal mountains is part of the U.S. and Canadian National Park Systems and includes the famous "Golden Stairs" ascent toward Chilkoot Pass. You'll also find many historic artifacts and archaeological features to observe and photograph along the trail.

Most of Alaska had gold, though the quantities varied considerably from place to place. Early prospectors often traveled from location to location in riverboats like the *Riverboat Discovery* in Fairbanks, and you can travel some of the same rivers they did in this sternwheeler. Plus, you can still pan for gold in many of the streams in the area and really find out what those adventurous souls were up against a hundred years ago.

A totally different sort of gold mining took place not far from Anchorage in the Independence Valley area. This was "hard-rock" mining, which required a little more expertise than panning for gold in the Klondike. Crews of men came in and literally built a factory for mining and processing.

Today, the park service is restoring the old buildings. It's a great place to visit in the summer for the flowers and scenic mountain views. But a lot of people visit Independence Valley for winter. Situated above the treeline, it gets 20 to 30 feet of snow a year, and the snow starts early and ends late. The cross-country skiing is outstanding, and the U.S. Cross-Country Team regularly trains here.

Another fascinating hard-rock mining site was established for another valuable mineral, copper. The Kennicott mining area is a huge ghost town in the middle of the wilderness of the Wrangell-St. Elias National Park (America's largest). The ore here was 80-percent pure, so rich that it made it worthwhile for a small town to be built in this remote location.

There are more than 30 picturesque buildings still standing in the area—the largest one (the main ore processing plant) is 14 stories high. Although the National Park Service is just beginning to restore the site, you can wander through for some great photos of

"The Last Train To Nowhere" waits in eternity for a rail connection in Solomon (far left). The spectacular ghost town of the Kennicott mine (above left). The Independence mine area (top) is great for cross-country skiing, and a small alpine stream (above) is typical of the scenic possibilities at other times of the year.
Left shot with Mamiya RB67 and Mamiya lenses; above shots with Nikon F4 and Nikkor 35-70mm; all Fujichrome Velvia

historic buildings. The nearby Kennicott Glacier Lodge is actually a replica of the original visiting staff quarters.

Much of Alaska's riches were found near the surface, easily panned from gold-rich streams. That's why so many people left the comforts of home to madly rush to the Alaskan territory in hopes of vast riches. Most didn't get rich, but their attitude left a legacy—Hope, Alaska, on the Kenai Peninsula.

The Hope area produced gold and still does today, although not in large quantities. Many weekend prospectors visit the area for a try. Bring your camera for the wildflowers and scenic views and a gold pan to try your own luck.

Another area that promised easy pickings was Nome. Gold was found there on the beach, and thousands of people moved in to find their "share." Within walking distance of the city, you'll find many remnants of its mining days, including huge dredges as big as houses.

One of the most interesting sites is northeast of Nome, the ghost town of Solomon. Here you'll find a complete train without a railroad, slowly sinking into the tundra. Entrepreneurs had a grand idea of linking the Siberian railroad from Moscow with the Trans-

(Cont'd on page 98)

Skagway's historic buildings have been wonderfully restored to look like they did during the gold rush times (top). This was a major jumping-off point for hordes of gold-seekers. A house-sized dredge finds no gold near Nome (above, left), and a dramatic scene that greeted early prospectors to the Hope area attracts modern visitors today (above, right).

See the Travel & Workshops section, pages 88 and 89, for more information on Alaska Outfitters.

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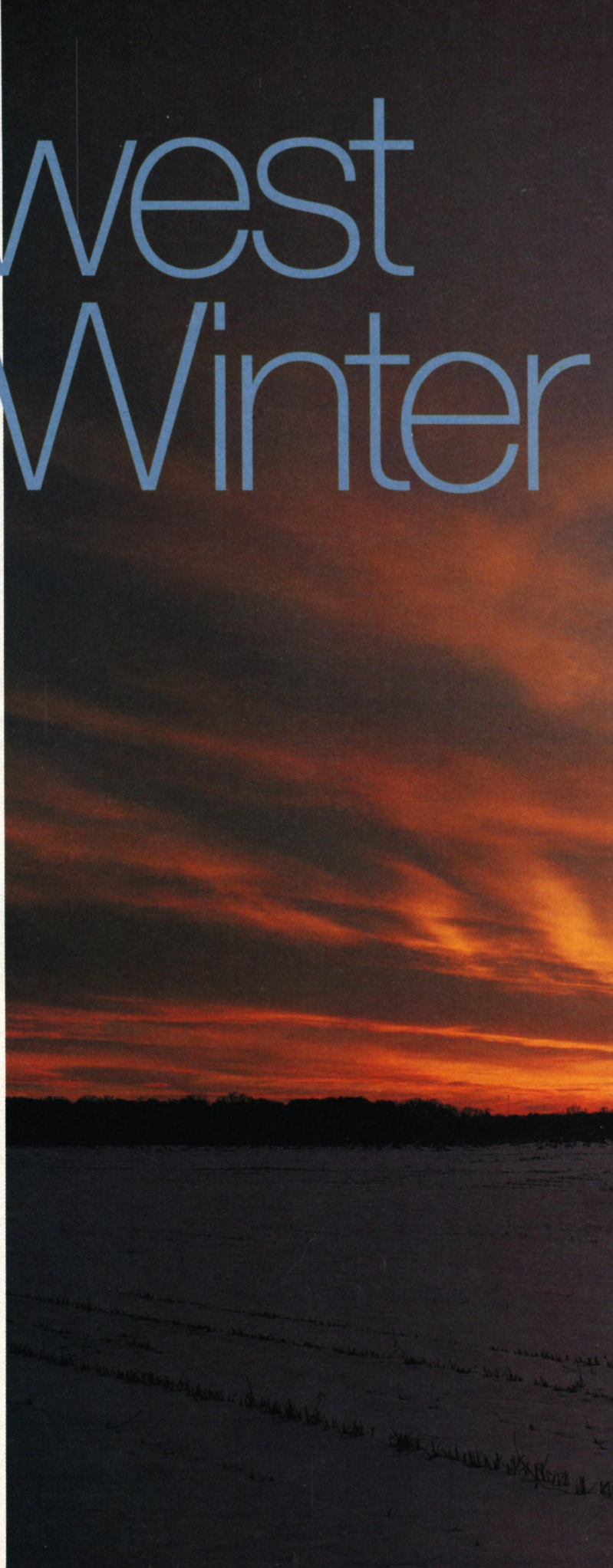
Midwest Winter



Even if you can't get to the mountains or travel to the sea, you can create magical images of winter. So put those long johns on and get outside.

Text And Photography
By G. Alan Nelson

It was a crisp and clear winter morning, with the temperature hanging around minus-15 F. The morning was dead calm, and my breaths were veils of steam. It was also stone silent. There were no sputtering automobiles, no ticking clocks, no ringing phones and no chattering people. The only things I heard were the squeaking of fresh snow under my boots and the rubbing of a wool cap against my ears.

I photographed a rural landscape that morning a few years ago: a fence in the

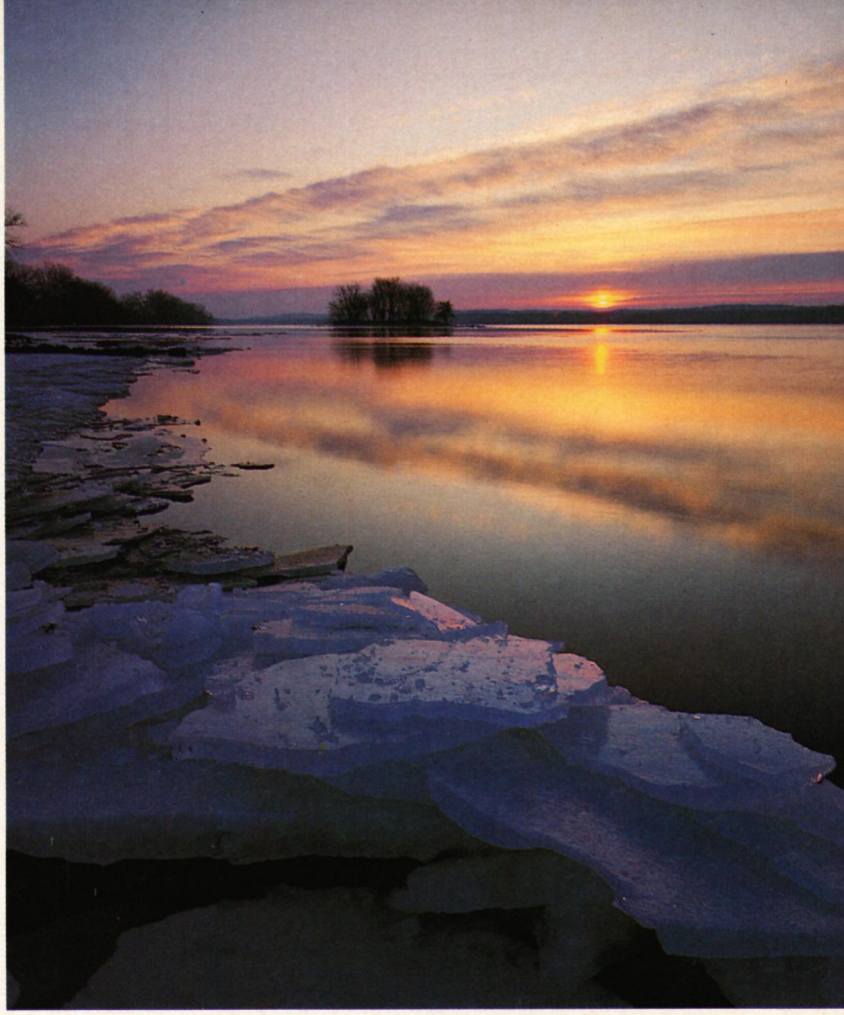
A minimalist image combines a great oak tree and kaleidoscopic skies. Opposite, windowpane glass stacks up on the shore of Lake Superior.
Both Toyo 45A 4x5, Nikkor 90mm (above) and 210mm, Fujichrome Velvia

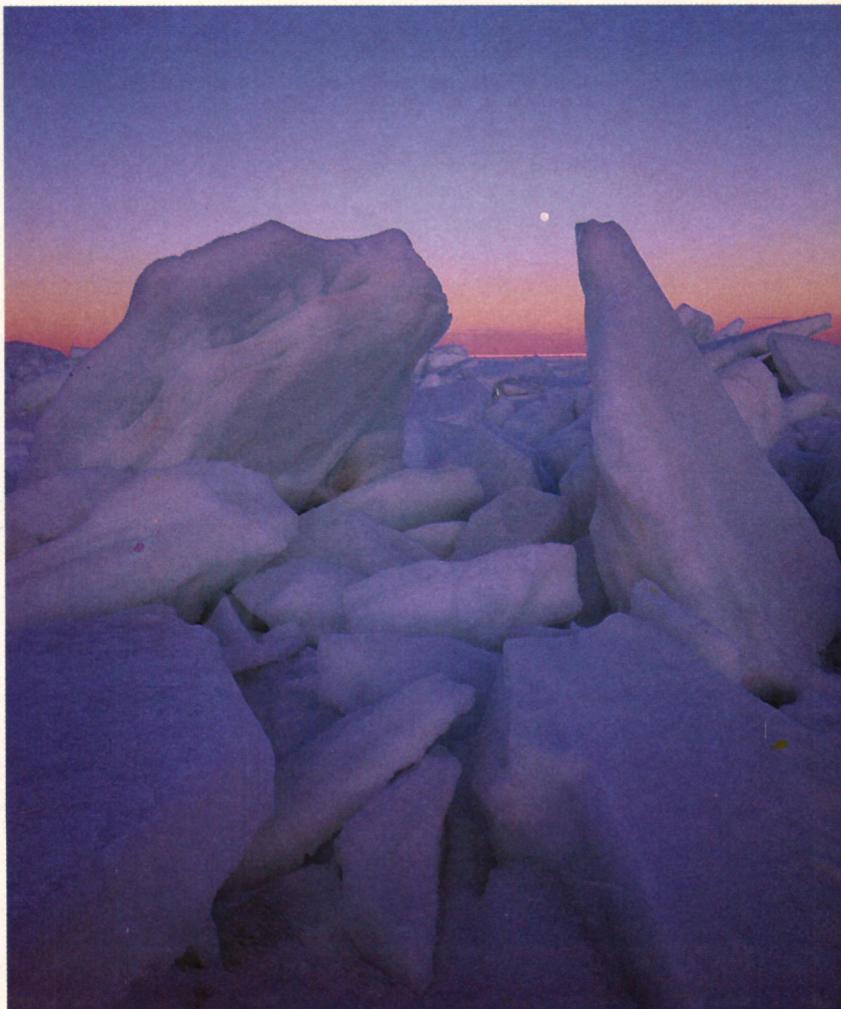
foreground leading toward a rustic barn surrounded with oak trees covered with hoarfrost. The light, the air, the silence and the landscape rejuvenated my spirit and put me on top of the world.

I hurried back to the office, processed my treasured image and handed it to the editor of the Midwestern newspaper where I worked. He promptly said, "We can't use this. There aren't any people in it." What I didn't want to do with the rest of my life hit me and triggered a gradual transition into landscape photography.

But photographers like me located in the Midwest don't have the luxury of majestic landscapes at our disposal. There are no snow-capped mountains or seastack-riddled beaches. What makes landscape photography in the Midwest even more challenging is the fact that there's snow and subzero weather for five months of the year. During these months, a photographer has the option of traveling to a more climate-friendly environment, taking the season off or getting out and start shooting. I find the latter most satisfying.

There are many things to consider while photographing winter scenes





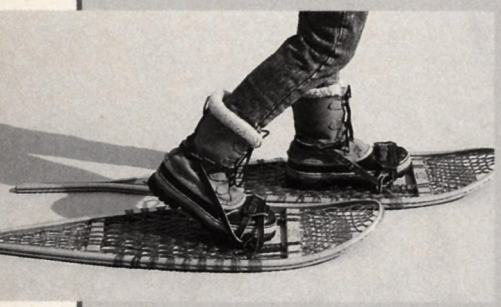
Fresh snow cleans up the landscape of the Presque Isle River in the Porcupine Mountains of Michigan (above, left). The colors of sunrise reflect on water and broken ice on the Mississippi River (above, right). The contrasts of night and dawn, sun and moon, warm and cold, play out on an ice floe in Lake Superior (right).
All Toyo 45A 4x5, Nikkor 90mm, Fujichrome 100 (above left) and Velvia

Winter Mobility

By Jim Zuckerman

A simple cross-country hike in the summer turns into a major challenge when the snow falls deep on the land. With the added weight of a camera backpack, a photographer will sink into the white powder with every step. In severe conditions, mobility is so inhibited that photography becomes virtually impossible.

I bought my first pair of snowshoes after I missed a great shot of trumpeter swans in Yellowstone a few years ago. There was no way I could approach them



JIM ZUCKERMAN

in the deep snow as they floated on the Madison River. Snowshoes allow you to go anywhere because they distribute your weight over a wider area and prevent you from sinking more than a few inches. So, you can cover distances quickly and relatively quietly.

Snowshoes are made of basically two materials: wood and aluminum. Both have advantages and disadvantages, but either will allow you complete freedom of movement, even in the softest powder. When you purchase your first pair, your weight, plus the weight of a typical backpack, must be considered. If you buy snowshoes rated for a lighter person, you'll sink deeper into the snow than is desirable. Snowshoeing on dry powder requires a larger snowshoe than on wet snow because powder compresses more under your weight. Larger snowshoes are less maneuverable, however, so the best strategy is to get the smallest pair that will support you in snow conditions typical of your activities.

Wooden snowshoes are truly beautiful and belong prominently displayed above the fireplace when not in use. They also tend to be larger and wider than aluminum snowshoes, thereby offering more stability in the snow. The more surface area a snowshoe has, the less you'll sink in fine powder.

Some wooden snowshoes also have a tail—an elongation of the shoe that offers additional stability. In thick woods, however, the tail becomes a liability. Twigs and branches will grab and entangle you, inhibiting your ability to maneuver, especially when pivoting or working low to the ground.

Aluminum snowshoes often have a sharp, serrated claw built into the bottom of each shoe located along the midline forward of center. While this claw increases drag as you walk through the snow, it becomes a tremendous asset in icy conditions where a crust has formed on top of a snow field. The claw grips the slippery crust and prevents slippage.

When walking up a slope, the claw enables you to move easily, while wooden snowshoes might prove to be awkward at best. In a worst-case scenario, you'd be prevented from chasing that perfect composition or a great shot of an animal in the wild because the wooden snowshoes would be too slippery on an icy slope. Some snowshoes also have a crampon underneath the heel area for better grip when descending.

Aluminum snowshoes are very light and relatively maintenance-free. Wooden ones are heavier and require periodic varnishing to protect the wood, plus repair of any cracks that develop from prolonged usage.

Bindings attach the snowshoes to your winter boots and should fit securely and comfortably. They should be easy to put on. Remember, you'll be strapping them onto your boots when it's cold.

besides dressing warmly and keeping your AAA card handy at all times. The first thing you must do is put on your long johns and get out of the house.

A good time to leave the house is during inclement weather. Falling snow acts like a brush, painting white streaks across your frame if you're using a slower shutter speed or, if you're using a faster shutter, gives a pointillistic feeling to the scene. Falling snow also tends to highlight your main subject because the background is muted.

Freshly fallen snow rejuvenates a landscape previously blemished with dingy and crusty snow. By photographing during the magical hours around sunrise and sunset, you'll find interesting textures and a rainbow of colors reflected in the fresh white stuff. If the wind picks up following a snow, as it often does on the plains of the Midwest, unique sculptures are formed, creating snow dunes that gives sweeping patterns and textures that play games with light. Even on hard, crystallized snow, the setting or rising sun will cut an orange swath across the landscape and replenish the scene with color.

Gray, overcast days can be oppressive, especially after three months of winter with two more to go. But dark gray skies, such as those seen before and after a snowstorm, give interesting tonal variations to subject matter, especially if you can create a horizon line that shows off the contrast. The snow will have little texture because there's no bright light for reflections and shadows. Try to match it up to an uncluttered gray sky and an orderly subject—white on gray is striking.

With only frozen white wasteland surrounding you, how and where does a photographer look for subject matter to photograph? During my tenure as a newspaper photographer, I learned to keep a journal that I filled with places and things that would make interesting photographs. In this journal, aptly titled "The White Book," are locations of rural scenes, landscapes, trees, winding rivers, lakes, prairies and wildlife areas that I can come back to and shoot when I have time to devote to the subject or when the season or light is right.

In the winter, subjects take on a new identity. There are a lot of deciduous trees in the Midwest and, since these trees lose their leaves in autumn, they look entirely different during the

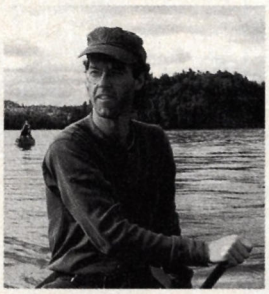
winter months. Structures, such as barns, fences and country roads, also give a new feeling when they're surrounded by snow rather than the various colors of crops and other vegetation. What you have on the Midwestern winter prairie, more or less, are naked trees and bare structures on a naked landscape. They can make very simple but bold compositions.

Minnesota, as well as other Midwestern states, border the mini-oceans, the Great Lakes. Lake Superior, for example, offers a myriad of possibilities for photographers during winter. The lake rarely freezes over completely, and ice forms along the shore creating exotic patterns and shapes. Ice shards, icicles and ice floes, those massive blocks of ice that heave up on the shore, create great photo opportunities.

During my travels, I stick to the small county or trunk highways that are scattered throughout the Midwest. The pace is slower and there's more time to concentrate on the landscape without being hurried along by traffic.

Intersecting these back roads are county, state and federal parks, forests and wildlife refuges. These sanctuaries preserve natural history and provide the photographer with possibilities during all seasons. Winter months are usually quieter in these parks, but cross-country skiers and hikers are sometimes present. To gain solitude, I put on a pair of snowshoes and hike in to more remote areas where the snow is undisturbed. Snowshoeing gives you the sense of being one with the land, which in turn gets the creative juices going and the blood flowing.

The four seasons afforded to Midwestern photographers give four different interpretations of the landscape. Winter, however, is the quietest, crispest and clearest of them all. **OP**



*Minnesotan **Gary Alan Nelson** lives near the St. Croix National Scenic Riverway and specializes in 4x5 natural history and rural America photography.*

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Nature's Photo

Plan your calendar for some terrific outdoor hotspots

January

Weeks 1 and 2: Oregon's coast and mountains

Why go to Oregon in January? Because there's no better place to photograph the Pacific coast during winter. Anywhere along the Oregon coast, all open to the public, you'll find wintering birds, seals and whales, great lighthouses and harbors, wonderful tidepools and spectacular coastal landscapes. And you'll have the place to yourself! Try Canon Beach, the Newport area or the dunes around Florence. When you want to try something different, head up into the mountains where you'll find piles of soft snow adorning magnificent trees and draped over the landscape. My favorite area is Santiam Pass on Route 20.

Weeks 3 and 4: Death Valley and slot canyons of the Southwest

For those of you who can't endure the cold, head for the deserts of the Southwest. Death Valley is great in winter because the temperatures are tolerable so you can linger longer. Besides, it's not as if you're going to photograph a lot of living things in a place called Death Valley, so you might as well go in winter. The bizarre landscapes don't change and you won't have to worry about frying your film or your brain. The same can be said for the slot canyons. The most famous is Antelope Canyon just southeast of Page, Ariz., but there are other less well known places that are just as interesting. Try the Paria Canyon area or ask at the BLM office for other locales. Be sure to ask locally about road conditions and permits.

February

Week 1: Ultimate Wolves model photography

Run by Joseph Van Os Photo Safaris, Ultimate Wolves is by far the best mammal shoot with the most marketable animals. The animals are extremely well-trained (no enclosures are used) so you get unique photos and not the same old animal on the same old rock or worn log.

Weeks 2 and 3: Yellowstone National Park

For those who want wild animals and great snowscapes, Yellowstone can't be beat. From Mammoth or Gardiner, on the north side of the park, you can easily drive to herds of bighorn sheep, bison, pronghorns and elk. Plus, you can take a snowcoach tour or rent a snowmobile to visit the geyser basins in the interior of the park.

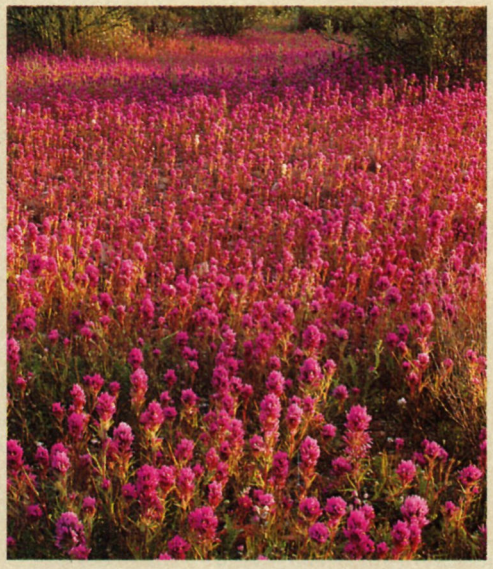
Week 4: Gulf Coast of Florida

Ding Darling National Wildlife Refuge on Sanibel Island is a magnet for wintering ducks, long-legged waders and pale-skinned snowbirds. You'll find ducks, herons, egrets, spoonbills, pelicans, hawks and osprey, most in breeding plumage. Be sure to spend at least a day at the now famous heron rookery up the coast in Venice. It's located behind the police station on a manmade island and gives you close, eye-level views of the nesting birds.

Events. Be There!

from January to December

Text And Photography By David Middleton



March

Week 1: Harp seals of the Magdalen Islands, Canada

Nothing is cuter or more photogenic than a harp seal pup lying in its icy cradle. The pups are surprisingly approachable. You can fly to the seal-birthing areas by helicopter, but the flying weather is often iffy.

Weeks 2, 3 and 4: Desert wildflowers of Arizona

Wildflowers begin to bloom around Phoenix first, then Tucson and then Organpipe National Monument. (Tucson and Organpipe are 1000 feet higher than Phoenix.) The Desert Botanical Garden in Phoenix is a good place to start. It also has a wildflower hotline, (602) 481-8134, that's updated weekly and gives locations of the current blooms. My favorite locations are the Superstition Mountains east of Phoenix, Picacho Peak State Park north of Tucson and Gates Pass and the Saguaro National Monument, west of Tucson.

April

Week 1: Desert wildflowers of California or Redwoods National Park

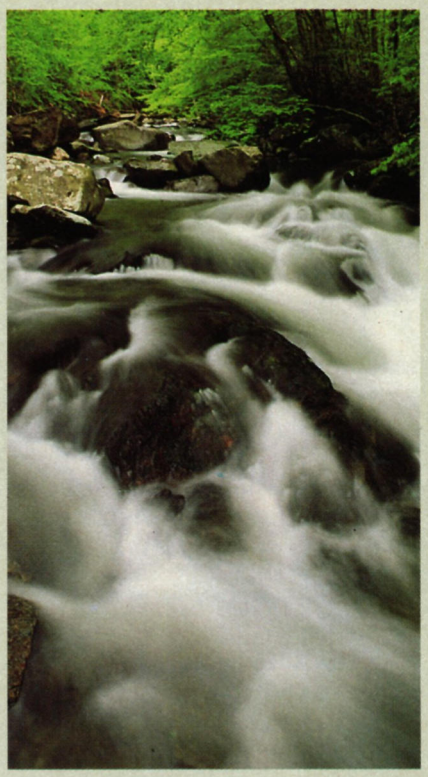
Since you're down in Arizona, you might as well bop over to Southern California and photograph the wildflowers of Anza-Borrego State Park and Joshua Tree National Park. The wildflower hotline number for this area is (818) 768-3533. If you've had enough of the desert, the redwoods of Northern California are great this time of year. The understory is greening, there are wildflowers on the forest floor, and fog often shrouds the trees. Be sure to check the beach for Roosevelt elk and interesting driftwood compositions.

Weeks 2 and 3: Texas wildflowers

A must for anyone interested in wildflowers. The best shows of flowers are right along the highways, so you must drive a lot to find your compositions. Start in Austin and head for the National Wildflower Research Center, which provides handouts detailing driving routes for wildflowers, plus a wildflower hotline. (The number changes every year.) My favorite spot is northwest of Austin near Buchanan Lake.

Weeks 3 and 4: Great Smoky Mountains National Park

The Smokies are the best place in the East to photograph spring. Wildflowers, dogwoods, rushing streams and mountain scenics are highlights. The traffic in the gateway city of Gatlinburg can be atrocious, but the photography is well worth it. Get a copy of *A Guide To Photography And The Smoky Mountains* by John Netherton and David Duhl to help you find the best spots.



A word of warning: These are the typical dates for each event in a normal year and can vary according to local conditions.

May

Week 1: Birds of Prey model photography, Colorado

Another Van Os model shoot and my favorite. Spectacular photography with often free-flying birds placed in natural settings and no maimed birds sitting on a gloved fist. We photographed 21 different kinds of hawks, owls and eagles on the last session I attended.

Week 2: Utah parklands

This is my favorite time of year to visit the redrock country of Utah, especially Arches National Park. You get all the benefits of the park without the summer crowds or heat. Plus, there are unexpected wildflowers that make great foregrounds for your landscapes. Be warned: The campgrounds can be crowded with mountain bikers.

Weeks 3 and 4: Ancient Forests of the Northwest

The old-growth forests of Oregon and Washington is where my spirit rests. At this time of year, the forest is overflowing with lushness, and you'll have the trees to yourself. The Hoh Rainforest in Olympic National Park is the quintessential old-growth forest. It has the biggest trees and is the most accessible. As a bonus, there are often elk wandering through the forest at this time of year.

June

Week 1: Yosemite and Sequoia National Parks

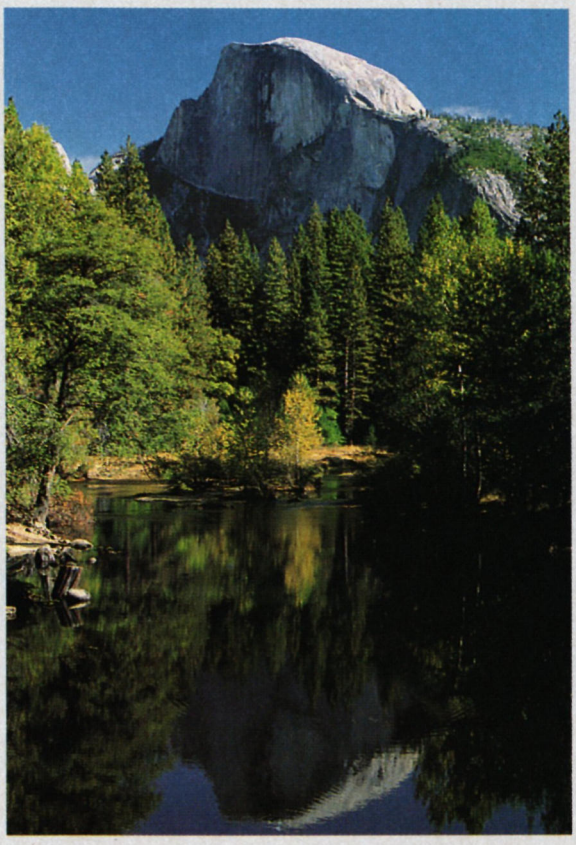
You can visit these two parks any time of year and get great pictures. In early June, the crowds are small, the meadows are fresh and the animals haven't yet been harassed into the shadows. You'll also find wildflowers galore from the alpine areas to the valley floor.

Weeks 2 and 3: Yellowstone and Grand Tetons National Parks

Many people avoid these two popular parks in the summer but, if you go now, the herds of Winnebagos aren't so bad. In Yellowstone, this is the time of year for baby animals, especially bison and elk. In the Tetons, great fields of blooming mule's ears and lupine make a dramatic foreground for the impressive mountains.

Week 4: Rocky Mountain National Park, Colorado

This park is often overlooked, but it's a gem. Trail Ridge Road traverses 12 miles of alpine habitat where the earliest summer flowers of Colorado can be found as well as grazing bighorn sheep and elk. The sheep and elk are best right after dawn. Later in the day, you can photograph cooperative marmots and the delicate alpine flower. Trail Ridge Road is also good for mountain scenics and sunsets.



July

Week 1: Olympic National Park, Washington

No other park in the United States has so much diversity and is so close and accessible as Olympic. Within 30 minutes of Port Angeles are tidepools, old-growth forests, sub-alpine flowering meadows with tame mule deer, glacier-topped mountain scenics and pristine beaches. Hurricane Ridge and Obstruction Point Road are best for wildflowers and mammals, the Sol Duc valley for old-growth forests and streams and Tongue Point for tidepools.

Weeks 2 and 3: Katmai National Park, Alaska

We've all seen a photograph of a fish jumping into a bear's mouth. That picture is a no-brainer at Katmai. The bears are habituated to people so you can get unusually close to them. You must time your visit with the salmon run—June is too early, August is too late. You also must share the park with some occasionally uncooperative fishermen, but the photography is worth it.

Weeks 2, 3 and 4: Wildflowers of the Colorado Rockies

In a good year, the alpine meadows of Colorado are a lush red, yellow and blue carpet of blossoms. The most well-known spot is Yankee Boy Basin above the town of Ouray, but there are dozens of equally good locations for you to discover. The easiest alpine wildflower location, accessible by a paved road, is near the top of Mount Evans, just west of Denver. You may have to butt a mountain goat out of your composition, though.

August

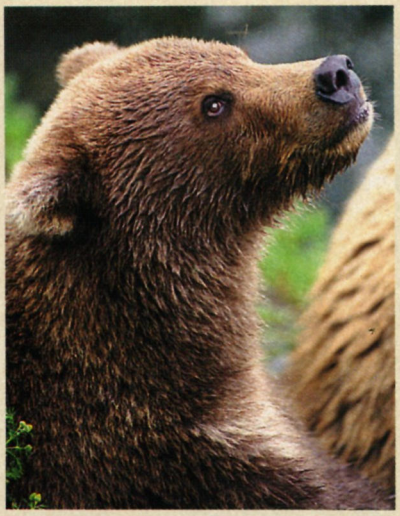
Weeks 1 and 2: North Cascades National Park, Washington, and Glacier National Park, Montana

To keep in the peak mountain wildflower season, you have to travel north as the weeks roll by. Mount Baker and the oft-photographed Mount Shuksan in the North Cascades are at their prime in early August. There are also several easily accessible old-growth forests nearby along Forest Service Road #20 between Darrington and the Barlow Pass. Going To The Sun Highway provides easy access to the magnificent alpine environment of Glacier. Look for mountain goats, and look out for bears.

Weeks 3 and 4: Africa and/or Therapy

Breaking away from the continent, now is the time to head for Kenya, Tanzania, Botswana or Zimbabwe. Yes, I know it has been done before, but the photos are still spectacular. You have to go on a photography tour, not just a nature tour, if you expect to get great pictures. Be sure everyone has his or her own window from which to

photograph—no point going to Africa and having to wait while someone else photographs. On the other hand, if these last eight months have finally gotten to you, now would be a good time to take a break, send a postcard to your family and maybe reassess all those antisocial behaviors (referring to 7-11 as home, the gourmet donut dinner and the Boxcar Willie fashion ensemble) of which you've grown so fond.



September

Weeks 1 and 2: Alaska

This is the best time to visit Denali National Park. The weather is cooperative, the animals look great (caribou have red antlers now) and the tundra has turned beautiful shades of red and gold. Make sure you get back to Wonder Lake for the best photography of Denali. This is also my favorite time to go to Katmai National Park. The fishermen are gone, the salmon are bright red and the bears are fat and happy.

Weeks 3 and 4: Fall Aspens of the Rocky Mountains

Now is the time when the summer aspens drape the mountain in dazzling gold. The best place in Colorado for aspens is the San Juan Mountains in the southwest corner of the state. Drive the "Million Dollar Highway" between Durango and Ridgeway for miles of aspen scenics or cross Dallas Divide between Ridgeway and Telluride for classic views of the San Juans. The Tetons are also wonderful at this time of year. (Yellowstone doesn't have many aspens.)

October

Week 1: Fall Color of Northern New England and the Midwest

The northeast kingdom of Vermont (north of St. Johnsbury) and the White Mountains of New Hampshire are my favorite places to photograph the autumnal colors of New England. In Vermont, drive all the backroads around Granby and East Brighton, and in New Hampshire, linger along the Kancamagus Highway (Route 112). Minnesota, Wisconsin and Michigan display great color in the Big Woods areas through the central and northern parts of these states.

Week 2: Fall Color of Central New England

Travel any of the backroads in Vermont, New Hampshire, Massachusetts or Maine, and you'll find lots to photograph. My favorite roads are Route 100 in Vermont, Routes 4 and 113 in New Hampshire, Routes 2 and 8 in Massachusetts and Routes 2 and 26 in Maine. If you don't want to drive so much, stay in Acadia National Park or in the Camden-Rockport area. Both have picturesque New England villages, interesting coastal scenes and plenty of nearby forests.

Week 3: Fall Color in the Smokies

The forests of the Smokies are the most biologically diverse in the Northern Hemisphere. Consequently, the range of colors, textures and patterns is equally diverse. Photographically, this means that there's more to photograph than you can shake an empty donut box at (some antisocial behaviors are harder to stop than others). Cade's Cove is the place to photograph, but get there early to avoid the considerable midday crowds. The Greenbrier area is also a good place for fall color and to hide from the hordes.

Week 4: Polar Bears of Churchill, Manitoba, Canada

(See November, Week 1)

November

Week 1: Polar Bears of Churchill, Manitoba, Canada

Like the brown bears of Katmai, the polar bears of Churchill are a must for all nature photographers. The polar bear season starts in mid-October and goes to mid-November, but the weeks in late October and early November when the ground is snowy are my favorites. Choose a tour led by experienced bear naturalists and photographers.

Week 2: Waterfowl of the Klamath Basin, California and Oregon

In mid-November, blizzards of snow geese and swans pour down into the marshes and lakes of the Klamath Basin and Tule National Wildlife Refuge. If that isn't enough, there are thousands of ducks and lots of hawks and bald eagles to photograph, with the snowy summit of Mount Shasta as a backdrop.

Weeks 3 and 4: Bald Eagles of Haines, Alaska

The Chilkat River in Haines hosts the largest congregation of bald eagles in North America when the chum salmon run is over. Of course, the area also has the largest concentration of rain/snow clouds known to man, so photography is very weather-dependent.

December

Weeks 1 and 2: Bosque del Apache National Wildlife Refuge, New Mexico

Bosque del Apache has the best wildlife photography in the west in the winter. It's well known for wintering sandhill cranes, but like the Klamath Basin, there are lots of other birds and mammals to photograph. The refuge roads provide easy access to all the ponds and lakes where the wildlife gathers.

Week 3: White Sands National Monument

White Sands offers the best dunes in North America. These New Mexico dunes are here year-round, of course, but there are less people and wind in December. Get in early for $35 and have the entire monument to yourself.

Week 4

You didn't really think I'd tell you to go somewhere over the holidays, did you?

Well, there you have it—the best times for great places to photograph for an entire year. I apologize if I've left out one of your favorite spots. On the other hand, consider it a little present—your favorite place won't be overrun with fellow photographers. A more complete "A Nature Photographer's Year" may be found in the upcoming book, *The Nature Of America,* published by AMPHOTO Books.

The most common question I'm asked as a professional nature photographer is "When is the best time to go to...?" Unless you know the peak time, you're likely to arrive too early or too late and spend your time photographing the "not quite" instead of the "couldn't be better." Don't you just hate to hear, "In a week this will be just great" or "Wow, you should've been here last week"?

To make all your photography as productive as possible, I mapped out an entire year with great places to visit at the best times. We couldn't cover every outdoor hotspot, but let this serve as inspiration, sort of a photographer's fantasy year. **OP**

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Songbird

Bring colorful wildlife subjects to your backyard and break up the winter doldrums

Text And Photography By Adam Jones

It's winter—days are short and seem to offer nature photographers an endless palette of gray gloom. In addition to the physical hardships of cold weather, interesting and colorful subjects are tougher to find.

About 12 years ago, I made my first attempts at backyard bird photography, and I've been hooked ever since. Now instead of dreading another dreary winter, I eagerly anticipate another season photographing some of nature's most animated and colorful subjects. Working at home allows photographers to work around unpredictable wildlife activity and changeable weather conditions.

The best approach is to entice avian subjects into areas suitable for photographs, which is easy during winter months when food is scarce. A regularly stocked feeder will soon have your yard teeming with wildlife subjects.

The goal isn't images of birds on a feeder, however, but shots of more intimate moments as subjects perch on natural foliage or props set up around the feeder. My feeders and previously gathered props are arranged at equal heights of about three feet above ground level. Photo props can be anything: small branches, twigs, weed stems, split logs or fallen tree limbs with abandoned woodpecker holes.

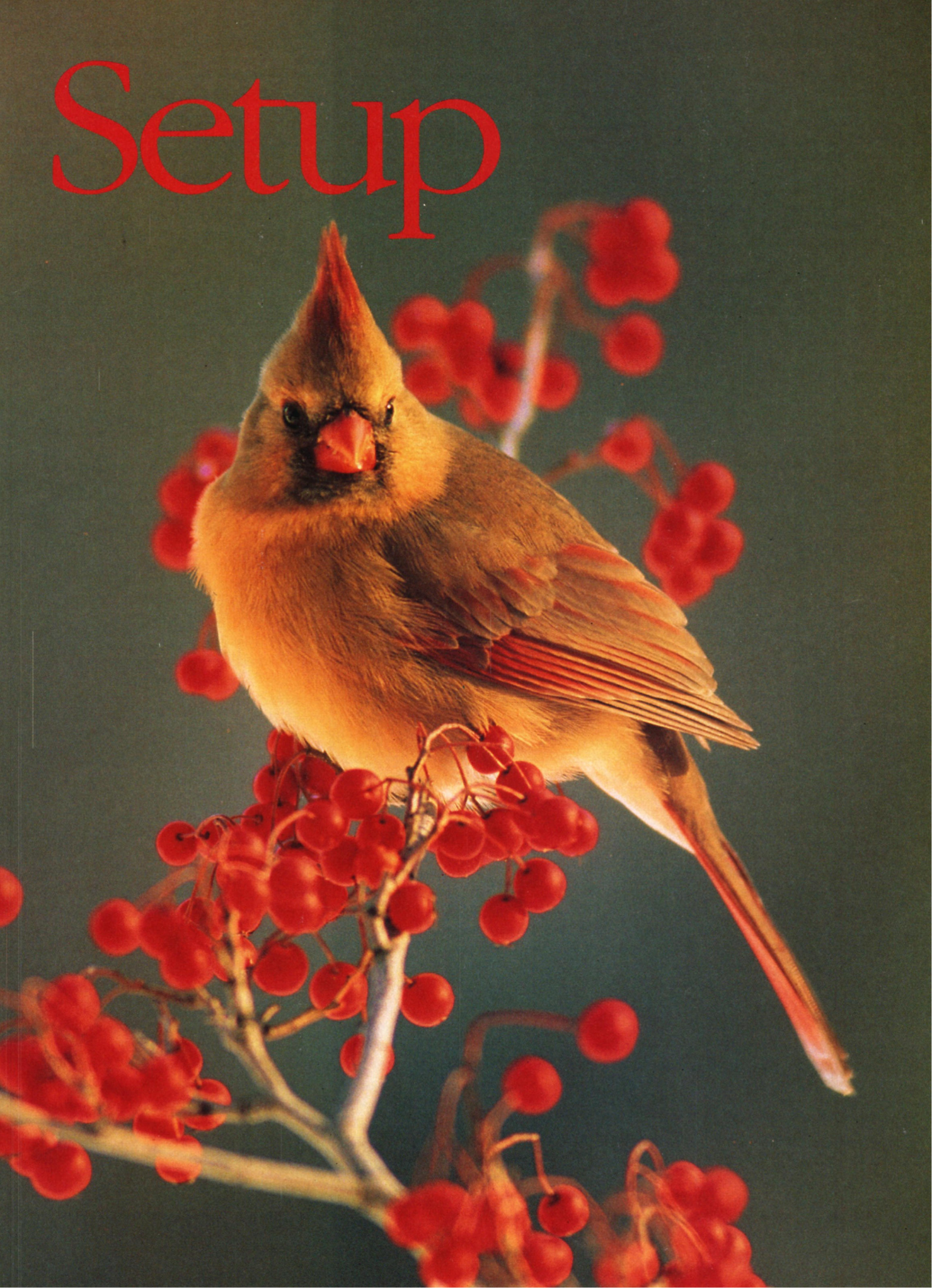
Once collected, props are clamped to old tripods, light stands or pieces of conduit driven into the ground. Wide plastic packaging tape can be used to secure large, odd-shaped objects that aren't easily clamped.

I prefer to locate props about four to five feet from the feeder and level with my camera. Now the birds have a ready-made staging area where

After a traffic-paralyzing snowstorm, Jones went into his backyard to capture the female cardinal (opposite). Light reflecting from the snow adds a dramatic quality to the image. Pre-placed perches (above) give the photographer a lot of control over the light and background of the bird.

All photos Pentax PZ-1P, Pentax 300 and 400mm, Fujichrome Velvia and Sensia

Setup



A female cardinal rests on the same perch as the white-throated sparrow on the previous page. The snow streaks come from a 1/30 sec. shutter speed.

they can perch until the usual busy activity around the feeder allows a comfortable approach. The best pictures occur when subjects are relaxed and waiting to approach the feeder. If birds seem to be landing only on the feeder, try placing the feeder on the ground beneath the props while shooting.

Now conceal yourself in a blind near the feeding activity. Most backyard birds are quite accustomed to living in close proximity to people. Simply place the blind where you want, and in a day or two the birds will pay little attention to the new object in the yard. The major exception to this is when parts of the blind are flapping or rattling in the wind. Try to secure all parts of the blind from moving and scaring off the subject at the worst possible moments.

I use the Leonard Lee Rue blind, available from Rue Enterprises, (908) 362-6616. This well-constructed one-piece blind, with built-in frame, sets up in seconds. Handy photographers may build their own inexpensive blind by covering an adjustable projector stand with opaque cloth material.

Your house, garage or automobile can also serve as a blind. Simply cover an open window or doorway with heavy material cut to allow the camera lens to see outside. The same can be done with your automobile, which is movable for better positioning. A blind doesn't have to be pretty, just functional. With a little imagination, a variety of materials commonly found around home are easily fashioned into a blind.

When you enter the blind, feeding activity in the immediate area is disrupted. It's best if two people approach the blind together. After the photographer is comfortably set up inside the blind, the accomplice simply walks away. Birds are worse at math than me and, upon seeing a single person leave the area, fail to realize one of the two intruders is still inside the blind. This technique isn't always required, but feeding activity resumes much quicker when one of the intruders is seen leaving.

The camera and any setup perches must be arranged in a manner that will yield a pleasing photo of the subject *and* background. Every bird photo has a background. Make sure it compliments the subject.

The unnatural designs of nearby houses, fences and automobiles appear distinctly out of place in a successful nature photograph. Watch for shiny bright spots, straight hard-edged lines and colors not found in nature. These are easily recognized as unnatural even when shot at *f*/2.8.

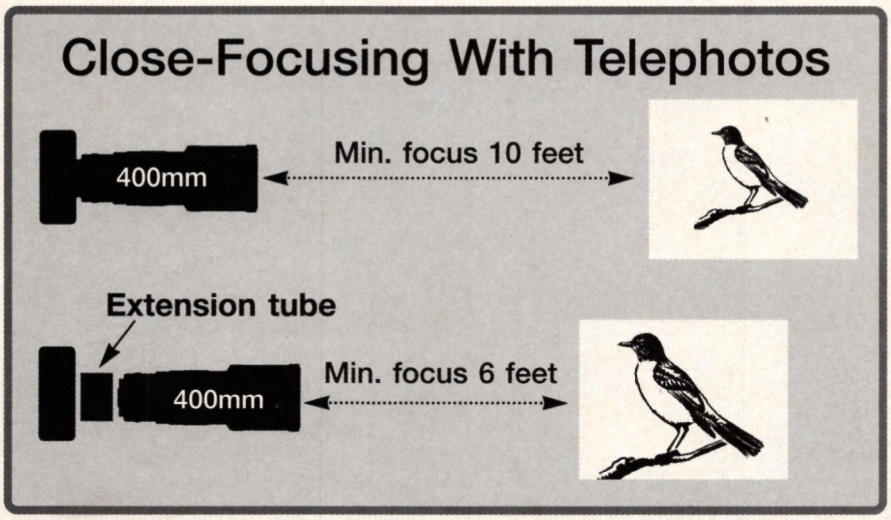
As a general rule of thumb, keep all background objects as far behind the subject as conditions permit. A distant background is more easily rendered out of focus and doesn't compete with the subject. My approach is based on elimination, and I strive to remove everything not adding strength to the composition.

Before setting up feeders or photo equipment, compare light levels between the subject area and background. This is accomplished simply by metering an average-toned subject in the prospective area for photography, then comparing that reading with a reading from the background. Avoid setting up where the subject will be in bright sun and the background in the shade, or vice versa. After testing, I've found that the lighting in my yard is workable only when it's overcast or very late in the afternoon on sunny days. So resist the natural tendency to position feeders in the brightest sunlit portion of the yard, unless the background is evenly sunlit as well.

This all assumes birds come to your feeders. It's really quite simple. The primary attraction revolves around a single feeder stocked with sunflower seeds. I also have a tubular thistle feeder and a suet log located in the same area. If water is scarce in your area, consider providing water for drinking and bathing. This simple setup

attracts northern cardinals, blue jays, goldfinches, house finches, purple finches, flickers, woodpeckers, tufted titmice, chickadees, wrens, sparrows, nuthatches, rose-breasted grosbeaks, rufus-sided towhee and others.

In early winter, hawthorn trees produce a showy fruit. Small branches cut when they're laden with red berries become photogenic props and serve as a food source for attracting robins and mockingbirds. Suet works best when wedged into abandoned woodpecker holes or into natural cracks and cavities in logs and branches. If branches with natural cracks and cavities are scarce, try drilling a series of small holes along a dead branch. Once holes are drilled, clamp the branch so the holes face 90 degrees to the camera. Now you have a perfectly natural-looking situation with opportunities for great profile shots of woodpeckers and nuthatches clinging to a branch.



To capture such images, you need some telephoto capability. My workhorses are the autofocus Pentax 300mm *f*/4.5 ED-IF and a manual focus Pentax 400mm *f*/2.8. Currently, I use a Pentax PZ-1P, which I feel is unsurpassed in the layout of its controls for nature photography. Deadly accurate, spot-metered manual exposures are set instantly with the push of a button.

For serious bird photography, I recommend purchasing the fastest 400mm to 600mm lens the budget will allow. A 200mm lens can be pressed into service, however, if that's your longest focal length. A 1.4X teleconverter can be added when more focal length is required for frame-filling shots. A 2X teleconverter will create an even more powerful telephoto. This added focal length comes with a penalty, though. Two full stops of light are lost, meaning wider apertures or slower shutter speeds must be used. Unless you own a very fast, high-quality optic, the addition of a 2X converter often proves difficult to use.

Longer lenses allow the birds to fill the frame from a greater distance. This offers several distinct advantages. First, the blind can be located farther from the subject. Then the lens protruding through the blind creates less of a disturbance when moved about for framing of the subject. And longer focal lengths have a correspondingly narrower angle of view, thus fewer background distractions are recorded.

I correct the bluish lighting conditions beneath dingy skies with an 81A warming filter or a KN UV filter by Singh-Ray. This filter acts as a heavy-duty skylight filter, adding a nice subtle touch of correction for those who find the 81A filter a bit too warm.

My standard film is Fujichrome Velvia rated at ISO 40. This fine-grained film is exquisitely sharp and in a pinch is easily pushed one stop (ISO 80) for added speed. Running a close second is Fuji Sensia (ISO 100), which produces excellent results when processed normally or pushed to ISO 200. The newer 100-speed films from Kodak and Fuji are particularly helpful for those with slow-speed telephotos.

I prefer using the fastest shutter speeds possible when shooting agile creatures. This means wide-open or nearly-wide-open apertures are commonly used. And I always use a tripod. Shutter speeds during the winter routinely dip into the 1/15 to 1/60 sec. range, so a sturdy tripod is a must.

You'll probably need an extension tube, because most telephoto lenses can't focus close enough for frame-filling shots of small birds. This simple device permits closer focus with no loss of image quality and only a slight loss in speed. Infinity focus is lost with extension tubes, but this is rarely a problem since most shots are made from about eight to 15 feet. An extension tube has no lenses and isn't an extender or converter.

Keeping warm is always a concern. Even mildly cold days feel much colder when sitting motionless in a blind. Your feet require a well-insulated pair of boots. I don't like shooting with gloves, so my bare hands are kept inside my coat until ready to shoot. I dress in layers, with the outermost layer made of a nonsynthetic material such as wool that doesn't make noise when moving my arms around inside the blind.

My favorite time for shooting is a cold morning after an overnight snow. As beautiful as a fresh snowfall may seem to us, this is a very stressful time for birds because their normal food sources are covered beneath a blanket of snow. When it snows, feeding activity increases and may continue throughout most of the day. Under these conditions, birds conserve energy by moving about less and seem willing to pose for the camera a bit longer.

Spend time observing the bird activity in your yard. Before long, you'll recognize established patterns and learn routes of particular birds well enough to know which branches they're most likely to visit en route to the feeder.

From the standpoint of perfecting your craft, few places offer the opportunities to learn and refine technique like that of the backyard. Who knows, you might have the opportunity for some truly exotic bird photography and the skills learned at home will be invaluable. **OP**

***Adam Jones** is a full-time nature photographer whose photographs appear in many national publications. He'll lead a photo tour/workshop concentrating on the birds of Everglades National Park and Ding Darling National Wildlife Refuge, February 3-9, 1996. For more information, contact: Nature's Light, 7805 Lake Ave., Cincinnati, OH 45236, (513) 793-2346.*

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Photography By
Lori Adamski-Peek

Four months before Lori Adamski-Peek was due to go to Calgary to shoot the skiing events at the 1988 Olympic Winter Games, she gave birth to her first child. So, when it came time to leave for Calgary, four-month-old Devin went, too.

A female sports photographer in an overwhelmingly male profession, Adamski-Peek doesn't have many role models when it comes to juggling the demands of career and family. Yet, over the past two decades, she has become remarkably adept at it.

Adamski-Peek has developed a reputation as one of the premier ski photographers in the world and has been to every Winter Olympics since 1984—Sarajevo, Calgary, Albertville and Lillehammer. Following Calgary, she branched out into other areas of action photography, both indoor and outdoor. In recent years, she has gravitated more to commercial clients, having shot just about everything from bathing suits to breakfast cereals.

On the eve of photographing her seventh Olympics, she's one of the country's top action photographers. Her work has appeared in *Newsweek, Sports Illustrated, Outside, Ski, Skiing, Powder, Women's Sports and Fitness, National Geographic* and numerous other publications. Her commercial clients include Eastman Kodak,

Adamski-Peek beat the odds in the sports-photography field by producing images that command attention. She says a key to capturing fast action is to prefocus on the spot you expect the action to be.
Canon EOS-1, Canon EF200mm ƒ/1.8, 1.4X converter, Kodak Lumiere

The in-camera spot meter was used for the basketball shot to meter the sky away from the sun. A long focal length gave the sun a dramatic size.
Canon EOS-1, Canon EF400mm *f*/2.8L, 1.4X converter, Kodak Lumiere

Adamski-Peek gained high impact by framing tightly on a swimmer moving right at the camera.
Nikon F4, Nikkor 300mm *f*/2.8 EDIF, Fujichrome Velvia

A typical track event gains a lyrical quality through the use of a very low angle and black-and-white film.
Canon EOS-1, Canon EF20-35mm *f*/2.8L, Agfa Scala Black-and-White

Subaru, Hind Sportswear, Tyr, Park City Ski Area, Dannon Yogurt, General Foods, Hedgren and CB Sports.

Adamski-Peek lives in Park City, Utah, with her husband, Tom, and daughters, Devin and Kylie. We interviewed her in her home, with a breathtaking backdrop of the Deer Valley and Park City ski resorts.

OUTDOOR PHOTOGRAPHER: As a female sports photographer, do you sometimes find yourself at a disadvantage?

Lori Adamski-Peek: In Barcelona, I think there were close to 1000 accredited photographers, yet I'm positive there were less than 10 women.

There's an international women's sports photographer's organization that's based in England, and I think there are 15 members. It's crazy. You're at the Olympics and you see another woman, and it's like, "Hey! Sister!"

At Lillehammer there wasn't one woman on the ski hill. I bet there were maybe five women at Lillehammer.

OP: So how does that work for or against you?

Adamski-Peek: I work with a lot of women who work as art directors and such. And I shoot with them a lot. So it has helped in a way. And I think that people remember me because I'm a woman. There aren't that many women doing sports.

It's not like you get harassed. I think the men know that I've done it for a long time, so I feel like I have their respect. It's fun. It's not uncomfortable.

OP: We know that in shooting sports, you have to be aggressive sometimes to get the position that you want. Does that affect you?

Adamski-Peek: Shooting at events, yeah. I have to get there early because I'm not going to elbow in. I'm not a real good elbower. So I just have to get out of bed a little earlier and get the position.

OP: So what does "early" mean?

Adamski-Peek: Well, to shoot Carl Lewis—when he was doing the long jump in Barcelona and it was thought he might break the record—if his jump was at 4 p.m., you had to have your position by 9 a.m.

This is classic: We were in Lillehammer and, for the 90-meter ski jump, there was room for maybe 10 people actually in photo positions. I really wanted to get one of those positions.

(Cont'd on page 82)

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VOL. 2 NO. 1 January 1996

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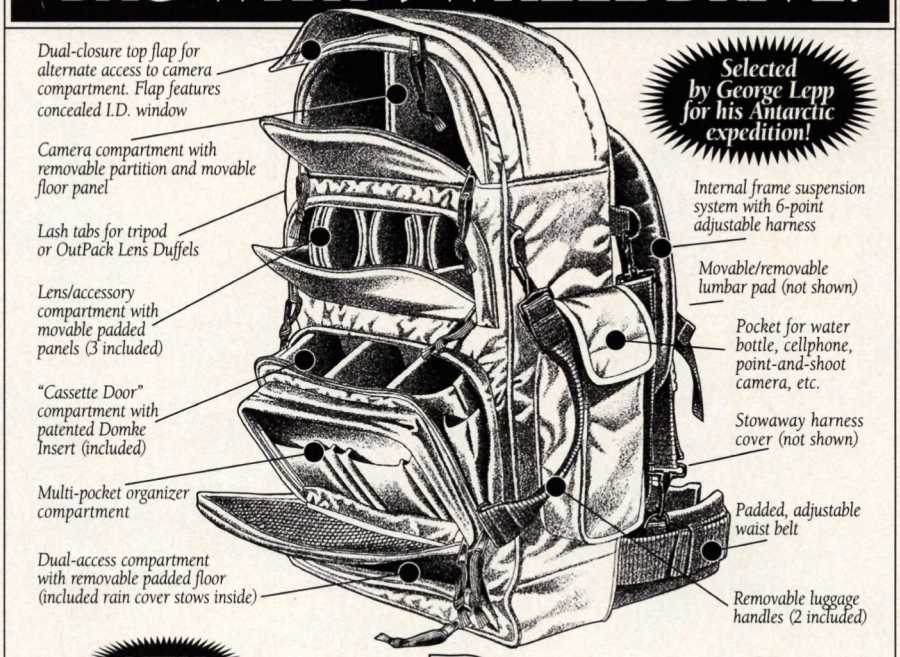

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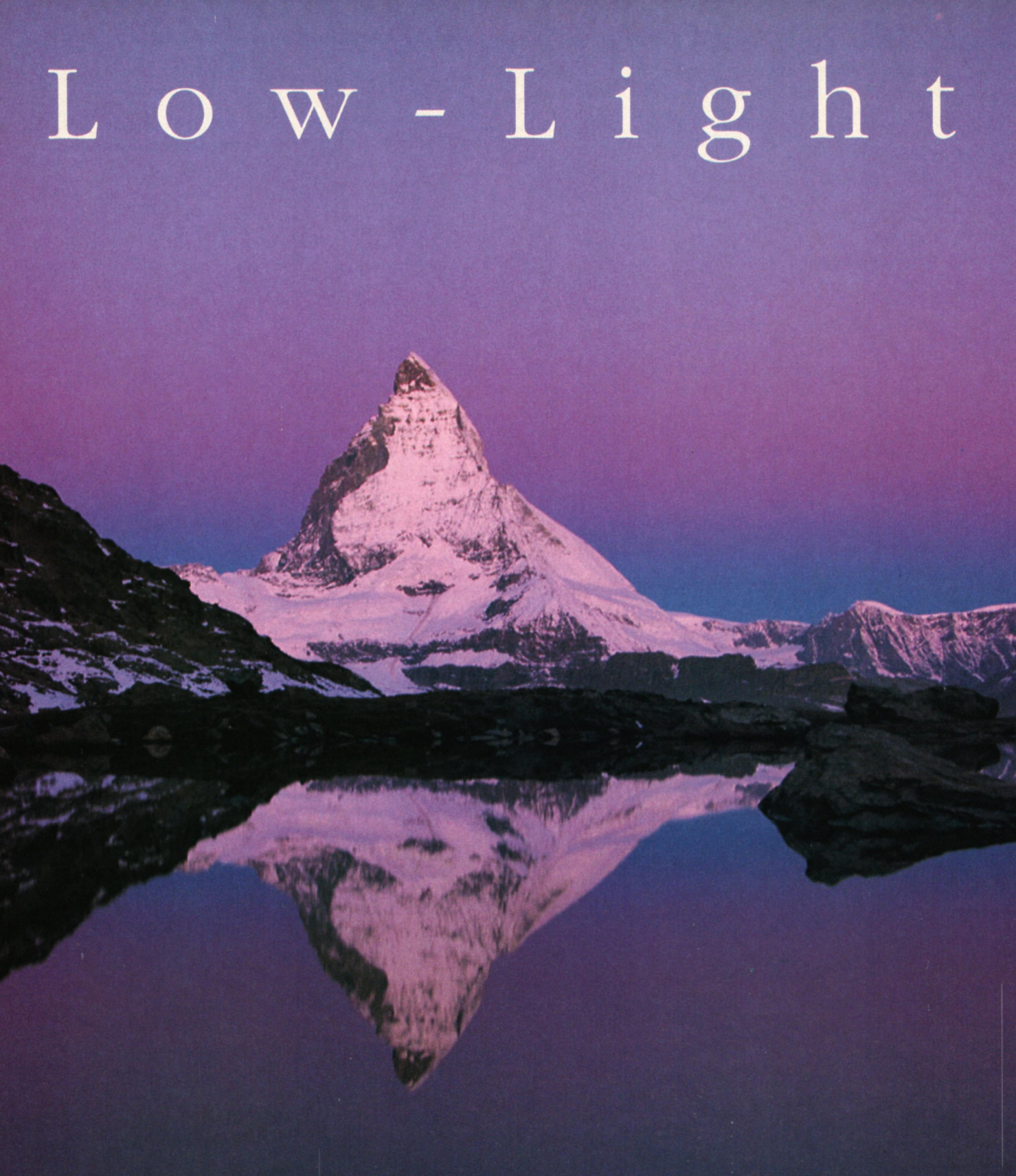

Many outdoor scenes look better at lower light levels. Here's how to get the best exposure under those conditions.

Text by Mark Gardner and Art Wolfe
Photography by Art Wolfe

Exposure

Early morning, twilight, overcast skies, deep shadows, forest interiors and other low-light situations often provide a quality of light that produces great images. However, the relatively low-light levels during these periods create problems that complicate the exposure puzzle. Shutter speeds may have to be too slow to freeze the action of a moving subject or even hand-hold your camera. In fact, shutter speeds may be so slow that normal exposure rules no longer apply, especially when using small apertures to maximize depth of field. In addition, light meters may not be sensitive enough to measure such low levels of reflective light. Thus, determining exposure requires you to play tricks with your light meter or to use exposure guidelines.

Slow Shutter Speeds

At lower light levels, you may have to use shutter speeds too slow to stop the movement of your subject or your camera at a given aperture. This problem can frequently be encountered when using slower but sharper films. Even in relatively bright conditions, such as a cloudy bright day or in the shadows on a sunny day, there's just not enough light to use fast shutter speeds with such slow films. If subject motion isn't a problem, but the required shutter speed is too slow to effectively hand-hold the camera, then use some form of camera support, such as a tripod, and a cable release.

Really slow shutter speeds. Shutter speeds of 1 sec. or more, often required before sunrise and after sunset, result in reciprocity failure, meaning that normal exposure rules no longer apply. Determining exposure by normal means results in underexposed images. To counteract reciprocity failure, add one-half to one extra stop of light to get a correct exposure. As a general rule, add a half-stop for 4- to 8-sec. exposures and one stop for exposures longer than 8 sec. For more exact adjustments, follow the film manufacturer's guidelines on reciprocity failure, which are usually available with the film or at camera stores. For shutter speeds of many minutes or hours, don't worry about compensating for reciprocity failure.

In addition to reciprocity failure, many films also show a subtle color shift, especially with very long shutter speeds of many minutes or hours. Film manufacturers suggest color-correcting filters to counteract this shift. Consult their technical data for which filter to use. However, for most outdoor photography, don't worry about

A two-second exposure captures the Matterhorn before sunrise (left). Wolfe shot this Wonderlake, Alaska, scene after the sun was gone (above).

The combination of mist and dense treetops made this midday shot a low-light situation (below).

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using such filters. In fact, these color shifts can create some interesting effects.

Increasing shutter speed. If, however, you want to stop subject motion, then you have to shoot at a faster shutter speed. According to the reciprocity relationship, the only way to do that when there's not enough light is to reduce the amount of light required by the film to make the image that you want. That is, you have to shoot at a faster film speed or higher 150 number. There are two ways to do this.

First, you can switch to a faster film. If an ISO 50 film isn't fast enough, switch to an ISO 100 film, which allows you to double your shutter speed. If that's not enough, try ISO 400, which is three stops faster than an ISO 50 film. However, faster films aren't as sharp as slower films, so you may not want to use them, or you may not have any faster film with you.

Second, rather than switching to a faster film, you can push the film you have. Set the film speed on your camera to the next-highest whole-ISO number, which buys you an extra stop of light, or the next-highest shutter speed. Then, when you have your film processed, specify a "one-stop" push. The lab will then process the film as if it was a one-stop-faster film.

For example, to push ISO 100 film one stop, set the ISO to 200 on your camera and specify a one-stop push at the lab that will process it, and it will be processed as if it was ISO 200. Most slide films can be pushed one stop with excellent results. Some can even be pushed two stops; experiment to see what works. Pushing your film one to two stops buys you an extra shutter speed setting or two, but may result in some increase in contrast and graininess, although usually less than that exhibited by a faster film.

Metering In Low-Light Situations

When you want to maximize depth of field, you determine exposure by first selecting a small aperture, such as *f*/16 or *f*/22, then taking a meter reading to determine what shutter speed to select for a correct exposure. However, in low-light situations, the required shutter speed may be longer than the slowest speed available on your camera, which means your meter can't measure such a low level of light.

To determine shutter speed, use the reciprocity relationship. First, open up to the largest aperture (*f*/2.8), take a meter reading, and adjust your shutter speed to get a correct exposure. Next, stop back down to the desired aperture, counting the number of stops between *f*/2.8 and the final aperture. Then decrease the shutter speed by that number of stops, adding additional stops as needed for reciprocity failure.

For example, at an aperture of *f*/2.8, you meter and determine that a shutter speed of 1 sec. provides a correct exposure. You then stop down to *f*/22, subtracting six stops of light. To end up with a correct exposure, you must add back six stops by using a shutter speed of 60 sec. Because of reciprocity failure, you must also add another stop of light, making the appropriate shutter speed 2 min. If the slowest speed on your camera is less than that, set the shutter speed to "B" and use your watch to measure 2 min. of exposure.

Determining exposures requires you to play tricks with your light meter or to use exposure guidelines.

If you still can't determine exposure, use the same method, but meter on something lighter than a medium tone. For example, to get the correct shutter speed, meter on your hand and add one stop, or meter on a white T-shirt and add two stops, again adding any additional stops as needed to counteract reciprocity failure. If that still doesn't work, extend the reciprocity relationship by adjusting the ISO rating to a higher number, take a meter reading, reset to the correct ISO, and reduce the shutter speed by the number of stops between the ISO rating at which you metered and the correct ISO, adding any additional stops to counteract reciprocity failure. If you use this approach, be sure to reset the ISO rating correctly. **OP**

This article is excerpted from the new book Photography Outdoors *by Mark Gardner and Art Wolfe, copyright 1995 by The Mountaineers, Seattle.*

R E A D E R T I P

Tripod Extenders

Make your tripod a more versatile tool with these simple add-ons

Text And Photography By David Jensen

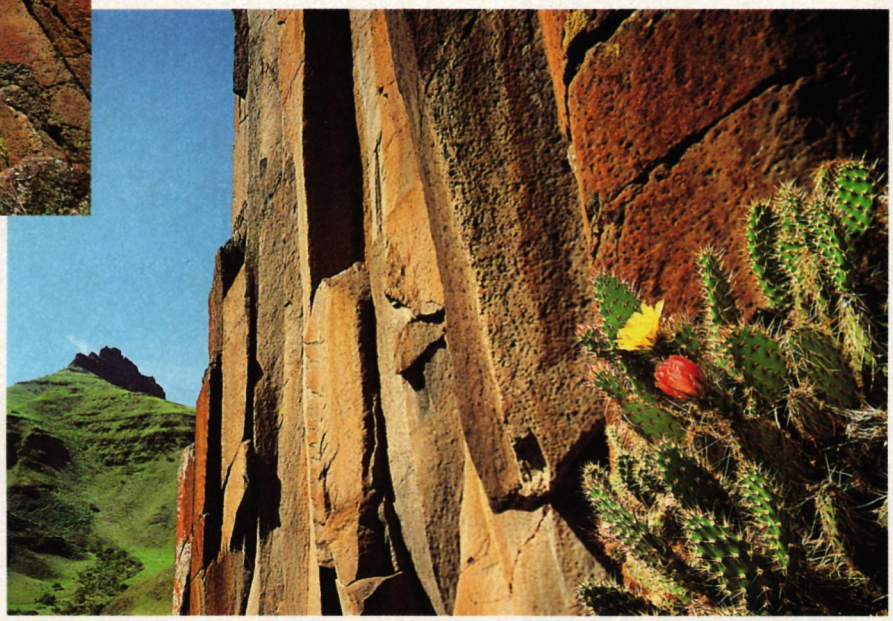
Tripod extenders are simple, inexpensive, homemade accessories that increase the utility of conventional tripods in outdoor situations. They've enabled my tripod-mounted camera to "be there" when an unassisted tripod couldn't be set up.

Snow Extenders—That tripods can fail in the outdoors first occurred to me during an overnight ski tour many years ago. I'd hoped to photograph alpenglow on the peaks and had assumed that I'd be able to improvise a platform for my tripod in the deep snow—perhaps using my skis as a base. But skis are designed to slip and slide, of course, which is just what they did when I tried to balance my tripod on them. The poorly composed, blurred transparencies that resulted from that misadventure show that the light, at least, was wonderful.

Immediately after that ill-fated attempt at winter photography, I stitched cordura pack cloth to metal hoops, making three discs eight inches in diameter, each weighing three ounces. "Snowshoes," in effect, for my tripod's legs, they've never let me down. Some photographers attach ski pole baskets to each tripod leg, and this seems to work well also.

Curb Extenders—Even the tallest tripods are often too short. This causes frustration most frequently along highways where potential compositions are typically blocked by fences, signs and other obstructions that require an elevated camera position.

To alleviate this source of frustration, I bought some wooden closet poles and cut them into three five-foot-long lengths. Using a table saw, I ripped a slight concavity along one edge of each pole and bound the poles to my tripod's legs with three hose clamps. Together, the three poles weigh nearly five pounds—too heavy for long backpacking trips. But they're always in my vehicle, ready to extend my tripod height for roadside photography.



They work so well that I've made another set six feet long, which I can splice (again with simple hose clamps) to the five-footers, enabling me to mount my cameras more than 10 feet off the ground. Even when I need a tall stepladder to access my camera, the fat wooden poles seem to dampen vibrations, ensuring sharp images.

Cliff Extenders—On hillsides of even moderate steepness, a tripod with its downhill leg completely extended requires its uphill legs to be fully retracted, resulting in such a low camera position that the view is often blocked by foreground grasses or other obstructions. Ideally, a tripod designed for canyons and mountains should possess one leg with extra telescoping sections. Lacking this, I clamp a curb extender to the downhill leg of a conventional tripod, allowing the uphill legs to be lengthened to the maximum.

Using a tripod with independently spreading legs—one of the Gitzo or Bogen models, for example—increases the odds of finding footholds for the uphill legs. Encouraged by the surprising utility of cliff extenders, I've successfully used my view camera on cliffs so steep that I didn't feel safe without a belay.

A cliff extender can be used as a tent or tarp pole, as a walking stick, as an aid in crossing streams or, theoretically, as a cudgel to fend off mountain lions. When a cliff extender is used as a walking stick, all that's added to the photographer's pack is the weight of the hose clamp—about four ounces.

With tripod extenders in my kit, I won't be able to blame my tripod for any shortcomings in my photos. OP

PRIMATES

Using a simple SLR with pop-flash, this eco-journalist has documented the grisly story of slaughter in West Africa and hopes to accelerate the cause to the forefront of the international conservation agenda

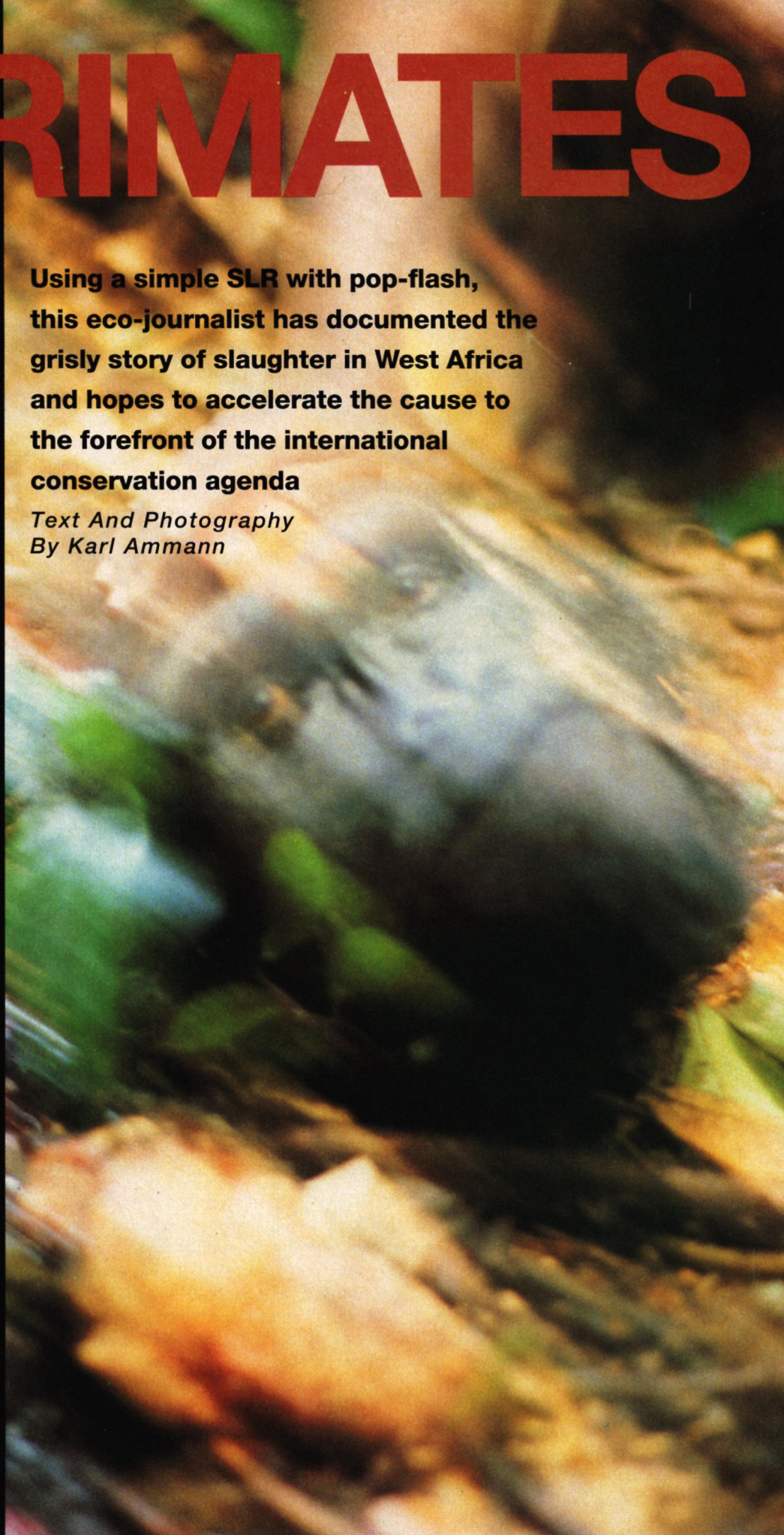
Text And Photography By Karl Ammann

Editor's Note: In April 1993, we published "Hostile Places and Sensitive Subjects" by Karl Ammann, a Swiss-born photographer living in Kenya. The gist of that story was how the traveling photographer could take surreptitious photos in countries where photographers aren't welcome.

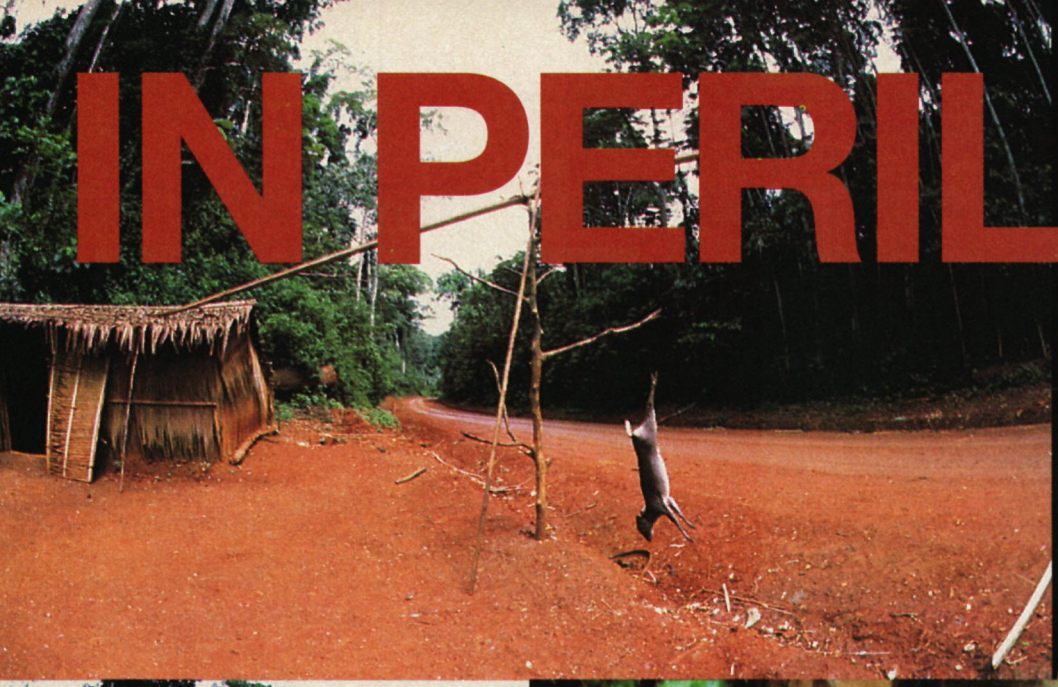
Since that time, Ammann has put his techniques to work for a greater cause: conservation of primates in the Central and West African countries of Zaire, Cameroon and the Congo. Using a modest SLR with built-in flash, he has mingled and photographed in places where the conspicuously equipped photographer wouldn't be welcome. To do more—to carry more gear or make the photography more produced—would be to call attention to himself and to his purpose. To become the director of staged events would put Ammann in the position of participating in the very slaughter that he's working to prevent.

We've elected to publish this article because we feel deeply for the cause; because the subject is a stunning example of how the very portable and unassuming 35mm SLR can be one of journalism's most potent weapons; and because bringing this story to market calls attention to an important moral question for eco-journalists.

Today, behind the cloak of unsympathetic governments, far from the reaches of law and order, there are times when destruction is moving so fast that the soft approach may be too slow.



IN PERIL



DEATH MASK (opposite): The morbid, all too human-like head of a lowland gorilla, which has been butchered to become highly prized table fare, wears an expression that speaks volumes. The author endeavored to combine a very slow shutter speed with flash-fill to produce an abstracted view of what would otherwise be too grotesque if rendered in sharp detail.

BUSH MEAT TRADE (counterclockwise from top left): Roadside advertising of fresh meat outside a makeshift hunting village; A catch of duikers caught by snares and displayed at a commercial hunting camp; Hunters waiting for a logging company lorry to provide transport to the road head and fertile new hunting grounds; Another "stylized" slow-shutter/flash-filled photo of a butchered gorilla carcass, proving that the killing of these adult animals isn't simply a consequence of the capturing of infants; A pygmy hunter was sent to retrieve a silverback head that was originally left behind because it was too heavy.

In 1988, I traveled several legs on the legendary Zaire River steamers. I'd been retained by an influential *Zairois* to do a feasibility study assessing the tourist potential of the river system. With literally thousands of passengers and vendors traveling on these overloaded riverboats, along with the many native craft that tie on and hitch a ride, it became a crowded, floating township.

What struck me more than anything else was the extent to which these steamers were used to transport "bush meat," a term for wild animal meat used for human consumption. The number of smoked primate carcasses brought on board was astounding. While chimpanzee meat wasn't generally on display, the number of orphaned chimps being brought aboard indicated that there seemed to be no taboo when it came to the hunting and eating of the great apes.

I was aware that many established conservationists and primatologists considered the main threat to wild gorillas and chimpanzees to be the offtake geared to obtaining babies for sale on the pet market, for labs and the like. Instead, all the hunters I talked to on the boats, and more recently in other parts of Central Africa, stated categorically that their objectives were not the infants; they were just an incidental by-product of the lucrative bush meat trade.

During the last seven years, whenever traveling in the region, I made it a point to learn more about the bush meat trade and its impact on the gorilla and chimpanzee populations. While a lot of other endangered species are affected by the increasing commercialization of the trade, I hoped the plight of the great apes might create the kind of interest that would result in the story being told.

From our 1988 trip, my wife and I brought back a small chimpanzee that was close to death when he came on board. He's still part of our family, and we can certainly endorse Richard Leakey's sentiments: When asked what the main difference was between the chimpanzee and man, he responded by saying, "We seem to worry a lot more about how close they are to us than they seem to!" To see a creature that's 98.6 percent genetically human treated as just another source of protein became a notion more and more difficult for me to accept.

About three years ago, I felt I had sufficient data, interviews with hunters, traders and anecdotal material to try to work it into a story and hopefully get it published. The main message: The bush meat trade has become very commercial in many parts of Central and West Africa, and the offtake of some of the more endangered species, such as gorillas and chimpanzees, can no longer be considered sustainable in terms of preservation of the species. A quote by an old southern Cameroon hunter illustrates the point. He decried the influx of hunters by stating, "Nowadays, there's a snare outside every rat hole."

> "The fact that the same day countless western-lowland gorillas and even more chimpanzees are slaughtered and eaten is evidently not worthy of public concern."

The slaughter for bush meat has accelerated in recent years, largely due to the widespread deforestation of the jungles in Central and West Africa. Now graded logging roads cut deep into the wilderness, providing easy access where nothing of the kind existed before. Lorry drivers and their trucks provide the necessary transport of the booty on its way to urban centers.

When a mountain gorilla (popularized by the work of Dian Fossey) gets killed, it's headline news around the world. The fact that the same day countless western-lowland gorillas and even more chimpanzees are slaughtered and eaten is evidently not worthy of public concern.

While many magazine editors with some natural history background were surprised by the facts and pictures I presented, it didn't mean they were ready to publish the controversial and unsettling material. A German publisher told me he wasn't going to classify a people by what they ate. The French and the eating of frog legs came up in the conversation.

A United States-based conservation publication informed me that the story was too sensitive as far as the African governments were concerned. It had field workers in some of the countries mentioned and such a story might jeopardize their safety.

Several editors felt the story should be told in the socioeconomic context. I informed them that I for one found it very hard to justify the status quo using the economic argument. Bush meat isn't consumed by Africa's starving masses. Once it reaches the towns, it's generally twice as expensive as beef or pork. It's a luxury commodity. No one would go hungry without it, except, maybe, a few hunters. Local laws exist in all the countries concerned, but they're widely and openly ignored. It wasn't easy to come up with a sympathetic angle to the story.

Picture editors had other arguments: The subject was too explicit, too graphic. A gorilla head cooking in a pot seems less acceptable than all the award-winning pictures out of Rwanda, showing human heads with machete cuts. As a consequence, on my last trip I started using the rear-curtain sync feature on my Nikon N70 so that the camera would select longer ambient light exposures mixed with fill-flash in order to achieve a ghosted, blurred or impressionistic effect to diffuse or soften the harsh reality.

This brings me to the photographic controversy that I feel would be of most interest to the readers of *OUTDOOR PHOTOGRAPHER* and to which they might want to react.

On some occasions when I showed my portfolio to picture editors, the response was: "There seems to be unexploited potential here." They assessed the material by comparing it with what one of their in-house staff or esteemed contributors would have done with a scene in question if they brought to bear all their usual methods for outstanding photojournalism and artistic documentary. Appreciation for the need for my surreptitious or "shoot from the hip" approach and the resulting extemporaneous appearance of the pictures wasn't to be found. A "real professional," I was told, would "work the scene" with multiple flashes on slaves, softboxes, clean up the backgrounds, add props (like the gun that did the deed), prompt a child to pose

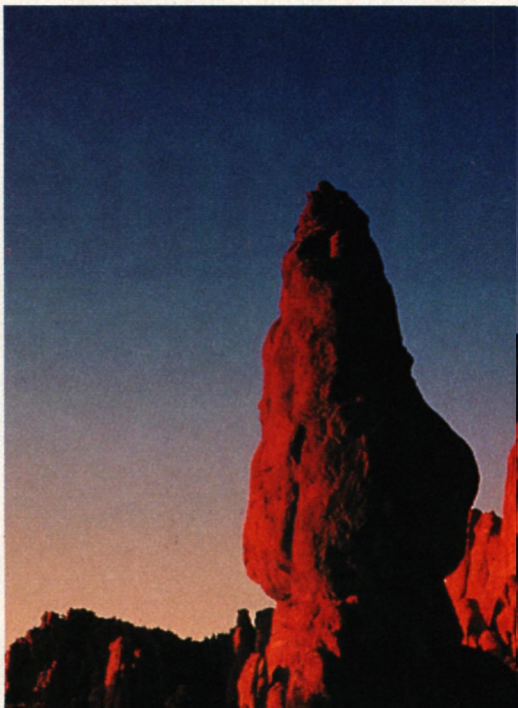
END OF THE LINE (counterclockwise from top left): A middle-class buyer shops for bush meat at Pointe Noire, Congo, where the price for primate exceeds that of domesticated meat such as pork; The leftovers are gorilla babies to be sold as pets or to zoos, and few live long in captivity with owners unskilled in maintaining such fragile creatures; A chimpanzee reaching out for contact with the outside world is the product of the all-too-common scenario—a cute baby pet quickly grows into a physically powerful animal, significantly stronger than its owner, totally unmanageable and destined to a life of solitary confinement; Others of these highly social animals remain in chains.

(Cont'd on page 76)

This misty-morning elk was Woodcox's first big seller (above). He photographed it in Yellowstone National Park in 1993.
Pentax ME-Super, Tokina 400mm *f*/5.6, Fujichrome 100

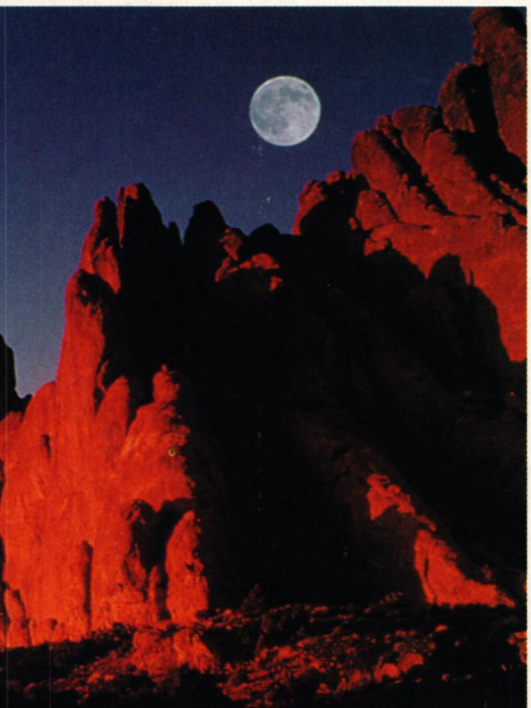
A bald eagle greets a snowy morning in Willard Bay, Utah (right).
Nikon F4, Nikkor ED 500mm *f*/4 EDIF, Fujichrome 100

In "Moonrise Over Fiery Furnace" (far right), a Cokin warming sunset filter enhanced the intense sunset colors.
Pentax ME-Super, Pentax 50mm, Cokin sunset filter, Fujichrome 100



No Excuses Career Change

There's always room in any field for those who are truly driven from within

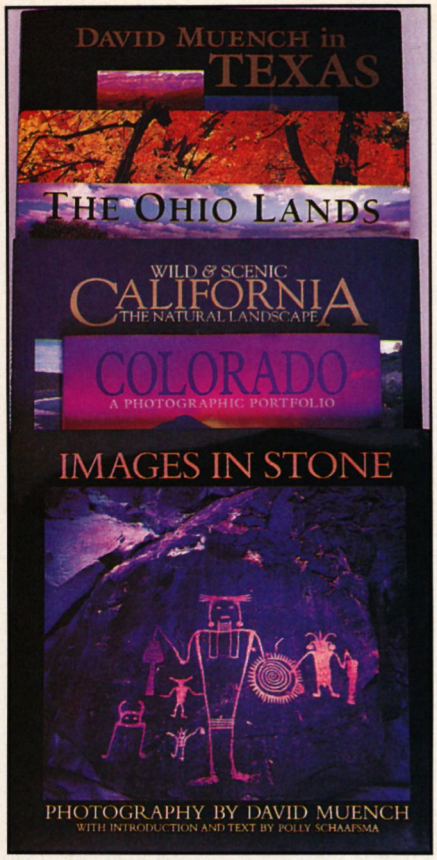


Text And Photography By Scott C. Woodcox

Editor: Many people dream of pursuing new careers, new challenges and new ways of life. But the soothing sameness of day-to-day life keeps them from seriously considering those ideas. Scott Woodcox got a wake-up call that changed his excuses into action. His story is an inspiration to all of us, no matter what our personal, unexpressed passion might be.

If I had a dime for every time I've jokingly counseled others to be careful about what they wished for 'cause they just might get it, I'd be a wealthy man. I offer that advice while building a career in nature photography, which has been a lifelong dream. But the original catalyst that pushed me past the excuse stage wasn't exactly what I had anticipated.

Like many readers of *OUTDOOR PHOTOGRA-*



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Career Change

PHER, I've always had a great passion for photography. I pursued wildlife and landscape photography as a satisfying hobby, but lacked the confidence and courage to make a career out of my passion.

After earning a degree in petroleum engineering, I spent five years supervising drilling rigs in the four corners area of the Southwest. During slow times on the rigs, I'd wander off, camera in hand, searching for subjects.

Engineering was an enjoyable profession, and I'd always have gainful and relatively secure employment. But photography had always been a recreational hobby and hardly seemed like work, so it had never been on my list of possible careers. Nor had I ever considered giving up my steady paycheck to earn what I thought would be a meager living as a photographer. I just always had an excuse for why I didn't pursue photography as a career.

In November of 1990, I was diagnosed with multiple sclerosis (MS). I had been experiencing visual disturbances, dizziness, numbness in my feet and a general lack of balance. The diagnosis was a terrible shock for an otherwise healthy, 29-year-old.

I was able to work for another year in an office setting but, due to declining health, I took a leave of absence. Bed rest was encouraged and soon became absolutely necessary. I could no longer keep my balance without firmly holding onto a wall, and the continual dizziness made me nauseous. The only relatively comfortable position was supine.

Faced with this predicament, I had two choices: I could lie around for the rest of my life and fade into a bitter state of non-existence or I could try to overcome the obstacles placed before me and make something of my life. My health oscillated as I adapted to the changes in my body, but an inactive body doesn't have to contain an inactive mind.

One day while reading a photography magazine, I stumbled upon an advertisement for a home-study photography course from the New York Institute of Photography (NYI). Suddenly, the future began to take shape as I realized what I could do with my life. A home-study course seemed the perfect way for me to master photography.

I imagined myself in the field, doing what I love, without stringent deadlines to meet, and having the convenience of being my own boss. I knew that I might never be able to climb mountains as I once did. And I wasn't going to beat anyone in the highly competitive outdoor photography market by working physically harder or longer. I'd have to work smarter.

With renewed fortitude, I began to proceed with designing my new career path, even if it was from bed. I was determined that my health was going to improve. While it did, I'd take each day to improve my outdoor photography intellect and creativity.

To get going, I enrolled in NYI's home-study course. It wasn't easy because of my disability, but I persevered and it got me started with some of the skills I needed. In particular, it helped me develop my "eye"—my ability to see a great photo in the viewfinder. Despite bouts of nausea caused by my infirmity, I immersed myself in nature photography literature, studying published images, learning which compositional techniques and lighting methods gave wildlife and scenics eye-popping impact.

This exercise helped to form my ever-developing style, and I began to notice a void in a certain area of nature photography. Knowing how winter and inclement weather challenge survival in the animal world, I wondered why I wasn't seeing more photographs depicting this struggle. I decided I wanted to represent the amazing adaptability of nature through this harsh season. I dreamt of the satisfaction that would come from one day overhearing someone say, "Look how beautifully the resilience of this animal is depicted here. This must be an image by Scott C. Woodcox."

Waiting eight months to get out and put my photographic skills to the test was unbearable. I kept my sanity by planning a timetable for building a feasible nature photography career. I wanted to open a gallery of my own someday from which I'd display and sell limited-edition photographs. I decided on three years of fieldwork, as intense as I could handle. For those first three years, I'd gather a large array of quality images from which I could find a select few that would sell and get my business off the ground.

For the first few years, I wouldn't

be able to afford any employees, so most of this endeavor would be on my own. I needed to market myself and get my name out to the public. Between photographic trips, I could contact galleries that would be willing to display some of my growing work or sell my images on consignment.

I began to get out more as walking and driving became easier. While my ability to deal with my illness had improved, most of the symptoms still lingered. I determined that most of my unanswered questions must remain unanswered for the time being. I'd cross those bridges when I came to them. At that point, just getting out of the house was euphoric.

In late 1992, I regained my health to the point where I felt I could make my first major outdoor photography trip. With the help of a brother who did most of the driving, I ventured to the Red Desert of Wyoming to test my health and artistic abilities.

During the week I spent there, I discovered an advantage I had over many other photographers. It must be difficult for some to sit and wait for the perfect moments to snap the shutter, but for me it was easy. I was accustomed to sitting or lying in the same position for hours, even days, and the chance to rest and carefully watch was always welcome. I returned home encouraged, with a few tasty images of pronghorns and the desert-butted landscape. A month later, aided by a close friend, I made trips to Grand Teton and Yellowstone National Parks.

In the field, I met professional photographers. I asked for their advice on reaching my career goals and learned how to expand my vision in the sale of my photos, to work on gaining exposure by having my images published and to look both ways before crossing certain roads in Yellowstone.

Throughout 1993, I made several more photographic trips, adding to my stock of images while trying to get my name out to potential customers. By June 1994, I had 15 photographs on display in a gallery in Gardiner, Mont. I also set up a gallery of my best work in my home state, Utah.

All this has come with its share of discouragement. I've found it difficult to find acceptance of wildlife photography in the fine-art world. It has been a challenge to put a lot of time

(Cont'd on page 97)

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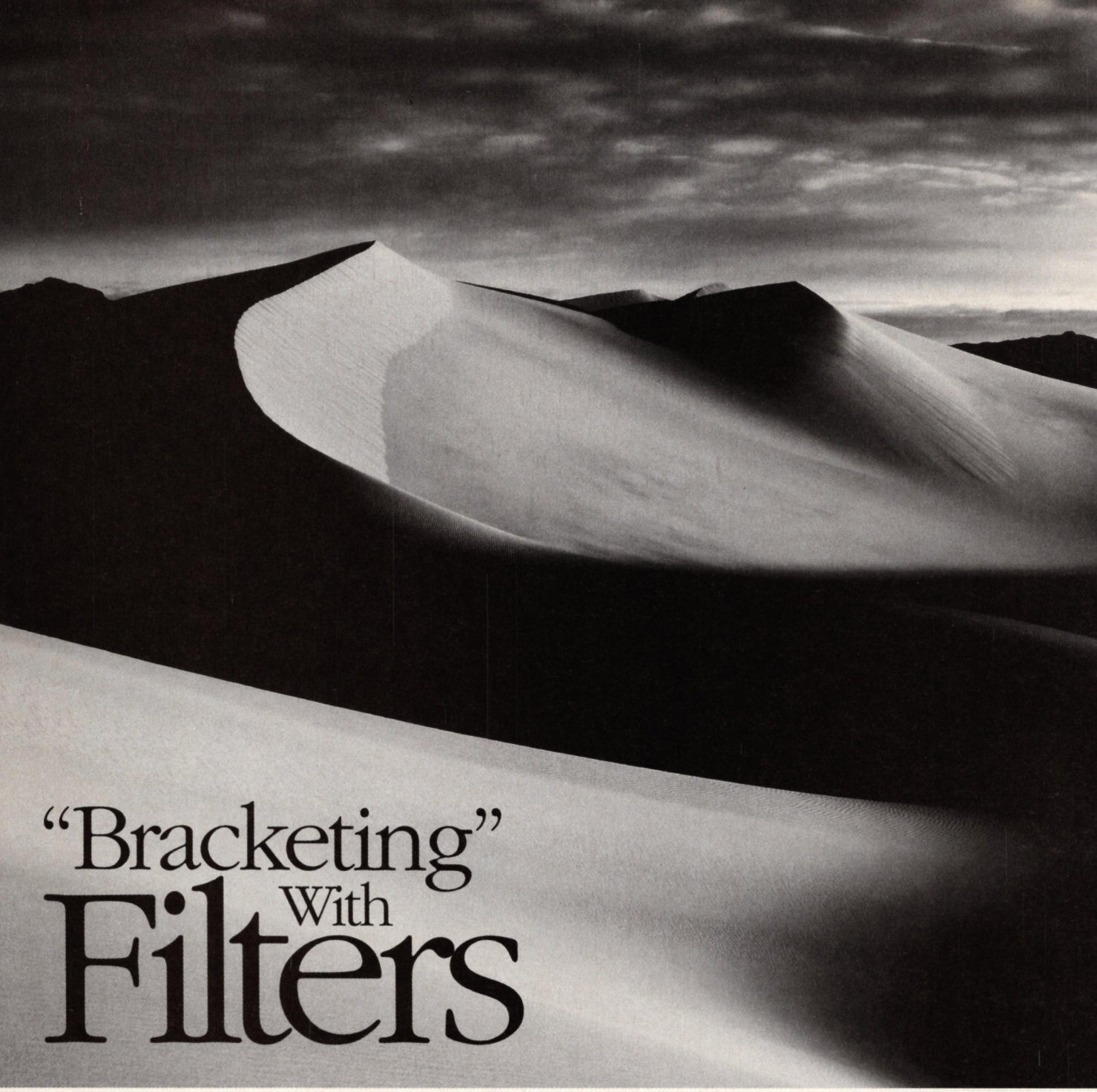

"Bracketing" With Filters

A unique approach to black-and-white landscapes gives great results

Text And Photography By Christopher Broughton

Simple forms, no bright colors—the windswept land faces some of the harshest conditions nature offers and offers some great photographic potential for the black-and-white photographer. I'm talking about the desert and the winter landscape. Both places challenge the photographer visually and physically, yet both places yield a certain beauty in the black-and-white image that can't be found anywhere else.

One of the hardest parts of black-and-white work is visualizing colors as shades of gray. What we perceive as separation of our subject and scene's different colors often merges into similar shades of gray. The stark contrasts of desert and winter scenes, from highlight to shadow, allow the photographer to capture the quiet power of the land, revealing nature's naked beauty unveiled only to those who choose to venture there and face the conditions.

Trying to convey the harshness of the land and its true beauty can be a

Filters are very important to controlling tones within a black-and-white landscape. For the dunes in Death Valley (opposite), a red filter increased separation between the light and shadow sides of the dune. In the snowy Yellowstone Falls image (left), a polarizer helped define the clouds. At the Trona Pinnacles in Death Valley (below left), Broughton tried a yellow filter, but found best tonal separation by adding a polarizer.
All Hasselblad 500CM, 50mm and 250mm Distagon, Kodak T-Max 100 (HC-110)

real challenge, one that will make you work hard to use all the photographic resources at your disposal. Everyone has felt the chill of an incredible image, then been disappointed once the film was processed and the prints made. Where did the magic go?

With the filters available to the black-and-white photographer, I find it hard to believe that they're often underused when they could enhance the image. For example, although many photographers frequently use a polarizer in color photography to increase saturation in a blue sky and eliminate unwanted reflections, it rarely seems to be used in black-and-white work.

After many years of personal use, the polarizer is now one of my favorite filters. Just like a red or orange filter, the polarizing filter increases the separation of clouds and sky. But it also retains shadow detail that's often lost with the use of the red or orange filter.

When using this wonderful tool, though, watch the corners of your image, particularly when you're using a wide-angle lens. The polarizer doesn't always darken the sky evenly. In color, this change of density from corner to corner is less noticeable, but when the sky is only a shade of gray, uneveness becomes very apparent.

Of course, the common black-and-white filters from yellow to red are very useful in controlling the tonal values of a landscape. The basic theory behind the use of these filters is relatively simple. A filter passes similar colors and absorbs its complement (making it darker). For example, a yellow filter passes yellow and absorbs blue (not letting as much light record on your film wherever blue is present in the image, therefore making it a darker gray).

A misconception in filter usage is that a filter lightens similar colors. It's actually the additional exposure, the incorporated filter factor, which gives the film more exposure in the similar colors.

While black-and-white filters are commonly used to increase the separation of different colors within a scene, filters will also work on subjects of the exact same color when they're illuminated by light sources of different color temperatures.

A sand dune or snowdrift illustrates

A yellow filter lightened these Nolina flowers in the Kingston Range without making the shadows go too dark. Hasselblad 500CM, 80mm Planar, Kodak T-Max 100 (HC-110)

this well. When the highlighted side is lit by the warm light of sunset and the shadow by the cool light of the blue sky opposite the sunset, very different colors are seen on each side of the subject. Shadow detail can then be decreased (darkened) by the use of a filter that absorbs the color reflecting from the shadow side. The result is a dramatic tonal difference between sunlit and shadow areas in the composition. If shadow detail is important, it can be increased (lightened) by using a filter that transmits the color of its light (a blue filter).

Now try combining a polarizer and a color black-and-white filter. This can bring incredible results in defining the landscape through better tonal separation. In fact, when the sky is hazy, this technique can squeeze out every bit of extra separation possible.

In black-and-white, as you learn to control exposure and processing, you'll find exposure bracketing is unnecessary. But have you ever considered filter bracketing? Can we always predict exactly and to what degree a red filter will darken a blue sky and separate the clouds? Or how much it will affect foliage or shadow detail?

We can have a good idea, but we don't see the nuances of color in light that film and filters do. I find that bracketing with filters helps avoid the overuse of filtration and is a great learning tool. If you shoot with a red filter, then try an orange for a less dramatic effect. If you shoot with an orange filter, try a yellow.

Only by experimenting and using that practice to build your experience can you begin to truly understand all the controls you have. Even when you think you have it nailed, try a different filter to see how varied an interpretation it creates. The ability to control the image precisely will make the final print the best representation of the image we perceived in our mind's eye.

Winter Tips

During the winter season, there's something that charges the air, lighting the landscape in an ethereal way. Things are stripped of their warm summer colors, leaving the monochromatic landscape to weather out the cold.

I can't think of another season that renders itself so well to black-and-white photography. With total control over your scene's contrast through proper exposure, development and use of filters, you can reveal the delicate palette of tones of this season.

Some of the most dramatic light of winter comes packaged with some of the harshest weather. I'm a true believer that there isn't anything called bad weather, just improper clothing and gear. Remember to use fresh batteries and keep extra batteries warm inside your coat (or in a remote power pack). Film advance should be slow to eliminate the chance of static electricity and any brittleness that might occur in the cold. Handwarmers for the pockets help keep the juices flowing when you get cold.

Use your meter diligently to check values in the image area. You might

Filters For Black-And-White Photography

Filter	What It Does
Polarizer	Darkens blue sky. Increases cloud separation at some angles. Eliminates reflections from non-metallic surfaces. Penetrates some haze by reducing reflections from atmospheric particles.
Yellow	Darkens blue sky and increases sky separation from clouds. Increases contrast by slightly darkening shadows. Most accurate tonal correction outdoors with panchromatic film.
Orange	Darkens blue water and blue sky. Increases contrast and darkens shadows more than dark yellow.
Red	Darkens blue water and blue sky considerably. Creates dramatic sky effects by greatly increasing tonal separation of clouds or subject against blue sky. Increases contrast in landscapes. Reduces haze.
Yellow-Green	Lightens foliage. Increases separation between clouds (or subject) and blue sky. Darkens blue sky without making light skin tones appear too pale.
Blue	Lightens blue subjects. Accentuates haze or fog.

Note: Always use the manufacturer's filter factor to compute exposure. Never meter through the filter as the colored filters used with black-and-white will cause meters to give erratic, inconsistent exposures.

be surprised at the contrast range of a winter scene. The snow can act like a giant fill card, making the scene flatter than your first impression.

Working with the simplicity of a winter scene can be difficult. Too often we want to include more in our viewfinder. Search the scene to find that special element, then keep the composition simple for its greatest strength.

Desert Tips

Simplicity is important here, as well, since the earth's naked beauty is often revealed as a skeleton of crust. While venturing into the desert in the height of summer is never recommended, winter is a great time to be there. With lots of water, a little shade and proper preparation, it can be a very beautiful and hospitable place.

In the shorter and cooler winter months, photographers have the added advantage of a sun lower to the horizon, helping with the side and edge lighting that brings contrast to the black-and-white image.

In 1994, the Desert Protection Act was passed by Congress, designating about 7.5 million acres of California as wilderness. This act made Death Valley and Joshua Tree National Monuments into national parks and added land to their boundaries. As a landscape photographer, this was great news.

There are some short-sighted members of Congress, however, who want to dilute the act. In addition, there are new skirmishes over land use throughout much of the West, especially in Utah. The desert land has coped with nature's harsh conditions for millions of years, but is easily damaged and destroyed by poor land use. The harsh conditions make it very difficult for the land to recover, at least not in any generation presently living. As outdoor photographers who appreciate the great beauty of our landscapes, we need to be ever diligent in protecting them and in challenging short-sighted special interests who would abuse the land for profit—profits that offer little profit for the rest of us. OP

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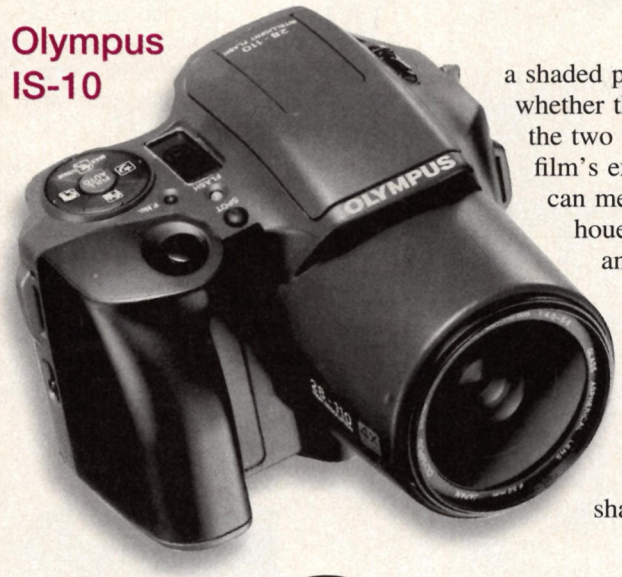

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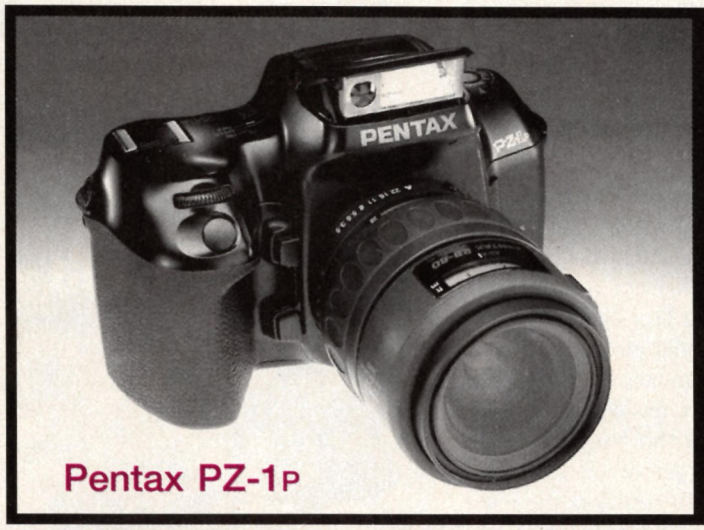


Pentax PZ-1P

Nikon N70

By Gordon Lewis

Today, practically every pro-quality 35mm SLR offers spot metering, yet do you know how to take full advantage of this valuable feature? Or why it's so valuable? Spot metering can give you exposure information and control you often can't get any other way.

You can meter the difference in brightness between a sunlit wall and a shaded porch and know whether the contrast between the two will fit within your film's exposure latitude. You can meter a bald eagle silhouetted against the sky and decide whether you want to record a silhouette on film or a perfectly exposed bald eagle. You can take a reading of a pale yellow mushroom sitting in a shaft of sunlight and know that your meter won't be fooled by the dark green moss in the background. When the lighting gets tough, the expert photographer switches on his or her spot meter.

Still, there's a simple reason why many photographers hardly ever use spot metering: They don't know how. They may even have tried it a few times, but with unpredictable and unsatisfactory results. If this sounds like you, there's no need to feel embarrassed or defensive. Camera instruction manuals explain little beyond the basics of spot-metering technique. The various Zone System exposure workbooks often go to the opposite extreme, giving the impression that you need an advanced degree in quantum physics just to calculate a so-called "perfect" exposure.

Not so long ago, spot metering was inaccessible to the average photographer. If you wanted spot metering, you had to buy a hand-held spot meter, with prices starting in the neighborhood of $300. Aside from the cost factor, a hand-held meter takes up space and can slow you down. (Slowing down isn't always a bad thing, of course, but that's a topic for another article.) It's no wonder that spot metering was something that most photographers knew about but seldom used.

The truth is that spot metering is as easy as taking any reflected light reading, once you understand the basics. While we can't promise to transform you from a spot-metering neophyte to an expert in one short article, we're sure we can make you

a lot more confident about how to use the spot meter in your camera.

How Big Is Your Spot?

Most hand-held spot meters have a metering angle of one degree, which is roughly the same angle of view as a 2000mm telephoto on a 35mm camera. The metering angle of a TTL spot meter varies with the angle of view of the lens you use, but the size of the spot-metering area marked on the focusing screen is fixed. For example, the Nikon N90s concentrates its spot within a 3mm circle at the center of the focusing screen, which translates into about 3.5 percent of the total viewing area. The Canon EOS-1N also reads about 3.5 percent of the total area in its normal spot mode, but can read as little as 2.3 percent in its "fine" spot-metering mode.

So how big is a spot? For the purpose of this article and by general agreement among camera manufacturers, any TTL meter that can read less than five percent of the viewing area qualifies as a spot meter. Anything larger than five percent is a "partial" or "selective" area meter. The illustration on page 74 will give you a better idea of how the various spot sizes compare. As you can see, even partial and selective meters read a rather small portion of the total viewing area. The smaller the spot, the more selective the meter reading.

An important thing to know about TTL spot meters is that some spots are more hard-edged than others. A hard-edged spot will basically ignore a bright light or tone located just outside its metering area. A more gradual spot will see and read that bright area, therefore giving you a higher meter reading, which can result in underexposure.

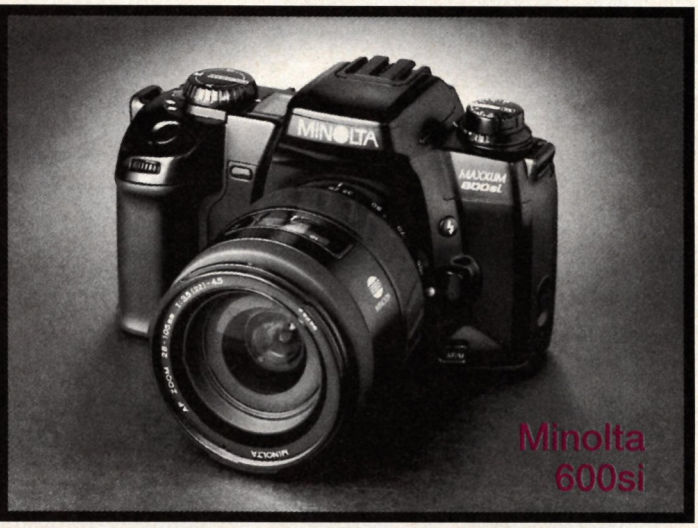
An easy way to test for this is to set your camera to spot metering. Gradually move the spot area toward a bright light source such as a light bulb, candle or skylit window set against a dark background. (*Don't* use the daytime sun for this test.) If your meter reading jumps only when the spot moves from dark to light, then you've got a hard-edged spot. If your meter reading starts rising as soon as you get close to the bright area, then you've got a soft-edged spot. You'll have to be careful not to let readings of dark areas be influenced by adjacent brighter areas. You can avoid this by simply zooming in your lens to narrow the angle of view while metering or by moving a bit closer to your subject.

The Law Of Averages

A spot meter does basically the same thing any reflected light meter does: It measures the brightness of the light reflected from your subject, assumes your subject is of "average" brightness and recommends an exposure that should reproduce it that way on film. The difference is that wide-area meters—whether center-weighted, matrix, multi-segment or whatever—read a wide range of brightness in their sensing area. They then recommend an exposure based on this range. As you probably know from personal experience, this works very well in

Metering

Spot metering can give you more control over your image exposure, but use it with care



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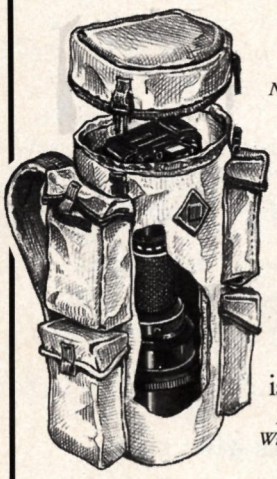

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most cases, even with point-and-shoot cameras. Problems can occur, however, with extreme contrast, dark or light subjects and when you want to precisely control the brightness of an image.

A spot meter can read a very specific area and therefore a very specific brightness. If what you're measuring is of average brightness—meaning a tone or a color halfway between white and black—you can use the recommended reading as is and get a good exposure. The photo industry standard reference for "average brightness" is an 18-percent gray card—a card that reflects 18 percent of the light that strikes it. The resulting middle-gray tone is at the midpoint between the blackest black and the whitest white you can produce on an evenly lit print or printed page.

If your subject is closer to being white or black than medium-gray, however, the meter doesn't know the difference. It will simply recommend an exposure that will reproduce that tone on film as if it was a midtone. Point your spot meter at a white heron and it will recommend an exposure that will reproduce it as an 18-percent gray heron. Point your spot meter at a raven and it becomes 18-percent gray on film. This is why you must use a spot meter with care.

Clearly, in order to beat the law of averages, you'll need to adjust for your meter's medium-gray bias. The problem many photographers have is that they don't how much to compensate or in what direction.

As far as the direction is concerned, remember that if your subject is lighter than medium-gray, you'll need to compensate by

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Adjusting Spot-Meter Readings

Subject / Compensation

Sunlit snow, clean white paint, clean white fabric, bright white sheet of paper, white fur or feathers **+2 stops**

White sand, light-colored fabrics, light paint or bark, pale fur or feathers, weather-beaten white paint, pale gray sky, dry concrete, untanned Asian or Caucasian skin **+1 stop**

Weathered wood, light-colored brick, green grass, dark gray or clear blue sky, well-tanned or medium-dark complexions **No compensation**

Dark wood or bark, dark brick, dry slate, dark green foliage, freshly turned soil, dark fur or feathers, very dark complexions **-1 stop**

Dark suit, black rubber, dark coniferous forest, wet slate, very dark animal fur or feathers **-2 stops**

You don't always have to use exposure compensation, of course. A simple alternative is to take a spot reading of a midtone (assuming there is one), use exposure lock to lock in the reading, then reframe and shoot. Another thing to keep in mind is that "perfect exposure" is usually subjective. You can shoot one frame of a sunset at zero compensation and another frame at -1, and either one might be "perfect," depending on the mood you want to convey. When in doubt and when you want to make sure you get the right exposure, bracket. It's no accident that most of the cameras that have spot metering and exposure lock also have an automatic bracketing feature.

increasing the recommended exposure. With most cameras, this simply involves turning the exposure compensation dial in the "+" direction, then locking in your exposure with the spot meter circle over the subject. If your subject is darker than medium-gray, you'll need to *decrease* the recommended exposure by turning the dial in the "-" direction. You can also compensate by using manual exposure and opening up the *f*-stop or using a slower shutter speed for "+". You close down the *f*-stop or use a faster shutter speed for "-".

How much compensation will you need? The chart at left should get you in the ballpark. If you think your subject is somewhere in between one of the steps shown in the chart, simply add or subtract an additional half-stop or bracket.

Keep in mind that this chart assumes your subject is evenly lit. For example, if a white cat was lying partly in the shade and partly in the sun, you'd have to decide whether to meter and apply your +2-stop compensation to the part that was in the sun or the part that was in the shade. As a rule, you'll normally bias your exposure toward the sunlit side, especially when using transparency film. If you open up the shadows by two stops, you also increase the brightness of the highlights by two stops, which could mean a serious loss of highlight detail.

For specifics on how to apply exposure compensation on your camera, you'll need to consult your instruction manual, but it's usually a simple and straightforward affair. Just make sure you develop the habit of resetting the compensation to "0" before you move on to the next subject. You'll want to do serious harm to yourself if you discover you've shot half a roll with the camera set to "+2."

Metering The Extremes

A spot meter is extremely useful for measuring the brightness range of your subject. This is particularly important when you're using slide films, which can accommodate a range of only about five stops, from the deepest shadow to the brightest highlight. Anything much beyond

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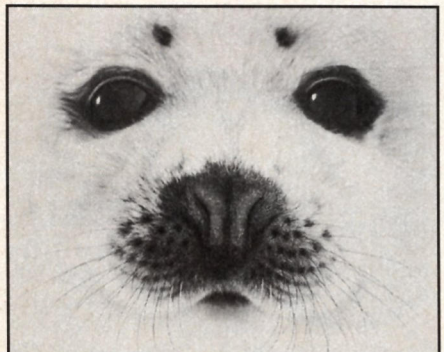

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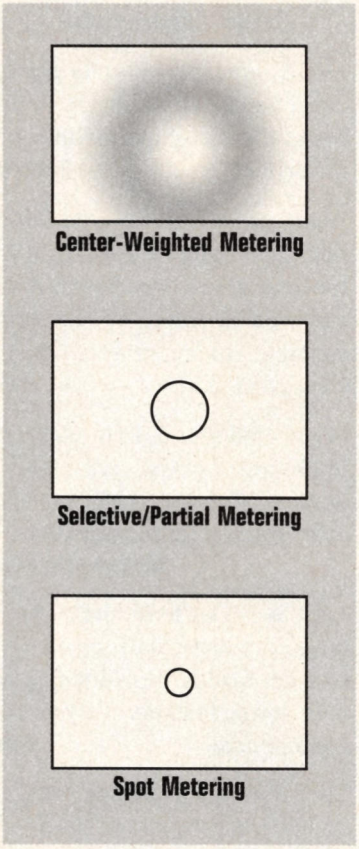
that reproduces either as solid black or clear film. Color-negative films have a more generous seven stops. Black-and-white films given reduced development can accommodate even more, but regardless of what film you use, good tonal reproduction depends on correct exposure.

Measuring brightness range is easy enough. First, take a reading of the brightest light tone that counts. (Ignore reflections of the sun in pools of water, light bulbs, etc.) Next, take a reading of the deepest shadow that should have some detail. (Ignore small, dark shadows that lack important detail.) Third, compare the two readings and calculate how far apart they are. If, for example, the first reading was 1/125 at *f*/22 and the second reading was 1/125 at *f*/5.6, then the difference is four stops. Set your exposure in the middle (*f*/13), and your film will show detail in both the light and dark areas you metered. (This might not be a perfect exposure if you really want to emphasize one area of brightness over another.)

If, on the other hand, the second reading was 1/125 at *f*/2, that would be a difference of seven stops—too much contrast for a slide film. An "average" exposure in the middle of the range would be unusable. You'd have to give up two stops at the shadow end of the scale in order to preserve detail in the highlights, but at least you'd know this *before* you expose the image rather than after, when it's too late to do anything about it.

Fine Tuning

If you're new to spot metering and especially if you like using narrow-latitude slide films such as Fujichrome Velvia, it would be a good idea to run at least one test roll through your camera using an 18-percent gray card to calibrate your meter. Use exposure compensation, automatic bracketing or manual settings to take three exposures: the first at the setting recommended by your meter, the second at +0.5-stop more, the third at -0.5-stop less. The normal setting should match the gray card almost exactly. If the +0.5-stop exposure is the closer match, then your meter tends to underexpose by a half-stop. If the -0.5-stop exposure is the closer match, then your meter tends to overexpose. You can compensate by either raising or lowering your film speed setting by 0.3-stop.



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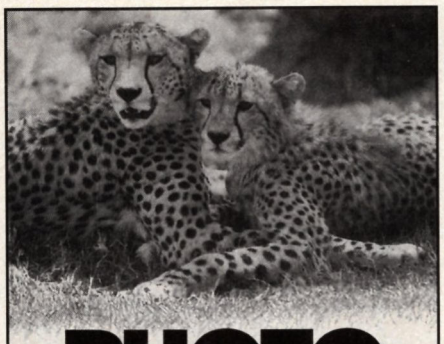

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PRIMATES IN PERIL

(Cont'd from page 61)

as though eating some recognizable primate body part.

My approach is to document facts as they present themselves. I was and still am hoping that editors and the public will react the same way to my material as they did to the clubbing of the seals or ivory poaching in the late '80s. Can such an argument be made honestly when presenting it based on setup and doctored picture evidence?

Two years ago, I spent a few nights in a hunting camp in the southern Congo. After two days, the hunters opened up. To start, the head hunter offered me all three of his wives. Then they showed me the skin and skull of a recently killed female gorilla. Upon my return, I told a friend and a very active conservationist who in turn mobilized government officials to investigate. The hunters responded by stating that I'd asked them to hunt the gorilla (it had been dead a week when I got there). As a result, the officials turned on my friend, accusing her of having set up my visit.

I've been photographing this story on an on-and-off basis for some seven years. During that time, I never saw or photographed the active hunting of a gorilla or chimpanzee. One major German publication showed interest in the story, but wanted to send its own photographer and writer, with me acting as guide. It wanted guarantees that its correspondent would witness the hunting of a gorilla. A budget of $50,000 U.S. was mentioned. I pointed out that no self-respecting hunter would take along two bungling novices, at least not without a serious financial incentive being offered. Such an incentive would mean setting up the hunt. How could we do a piece condemning the practice if we became the instigators?

Previously, I had helped with the production of two documentaries where I stipulated in the contract that I wouldn't assist if the filming required any active hunting of gorillas or chimps. The fact is, real events take place, but it takes time and sometimes luck to acquire them on film—not an option for a professional on a high-budget, three-week assignment.

There's another aspect to documenting such a story photographically. Essentially everybody involved accepts that laws are being ignored and broken and that photographs represent evidence. In most of the countries concerned, a foreigner traveling in areas that are off the beaten track is already suspect and a target for official harassment. Carrying sophisticated camera equipment and photographing scenes that could result in the honor and dignity of the country being maligned is courting serious trouble.

The official Cameroon tourists-only photography permit states that you're not supposed to "take pictures of anything likely to cause a decline in morality and/or damage to the country's reputation." The interpretation of this law is left to the person who decides to take you to task for it. If you're a foreigner and your equipment looks like you're reasonably affluent, you're a target. The photography is just the means to get to you. As I outlined in my previous article (*OP*, April 1993), I'd never been arrested until I became serious about photography. Nowadays, I expect at least one such incident on each trip. Zaire is the worst. Getting caught in towns like Kinshasa or Kisangani is putting one's life in danger; in other countries, it mostly turns into negotiations over fines.

I've restricted my style of travel to that of a backpack tourist, carrying little equipment and using the grab-and-run approach when photographing sensitive scenes. Many a night I lay in my sleeping bag and wondered why I hadn't covered more camera angles or used more sophisticated flash equipment. The inevitable answer: Be content with what you got; don't push your luck. The role of a curious tourist can only be played to a certain point. Situations can deteriorate very fast and the next step is generally a confrontation with someone in uniform.

On my most recent trip, I decided to take some risks if the technical sophistication of the picture material was to make the difference between the story being told or not. We heard about a baby gorilla being held in a nearby logging camp and, generally, baby gorillas only live a few days or weeks in a captive setting. We had no problem finding the home of the owner. The gorilla was locked in a wooden box, and the lady of the house agreed to take him out and put him on a chain. I spent some time playing with and

grooming the youngster, shooting a few pictures with my F70 and built-in speedlight.

Soon, more and more people started surrounding us. I decided to "go more sophisticated." I went to our bush taxi, took out an F4 body with a TTL extension cord and an SB-25 Speedlight. With that, the woman pulled in the chain, grabbed the animal and back into the box he went. She was no longer comfortable with our level of interest and told us to come back at lunch when her husband, a logging lorry driver, would be home. We left quickly and quietly, knowing that we needed authorization to enter a logging camp—which we didn't have—and staying would have been pushing our luck. We probably could have bought the gorilla for a mere $20 U.S., taken him to a remote hunting village, provided some "incentive," created the "right" scenario and filmed at leisure. But would the end have justified the means?

The commercialization of the bush meat trade is one of the main conservation issues in Africa today. It goes far beyond the plight of some individual chimpanzees or gorillas. Even elephants and creatures like the giant armadillo-like pangolin are slaughtered regularly and sold as chunks of meat. The conservation community has no real answers and no programs to curtail the bush meat trade. Publicity concerning such an eco-disaster is an embarrassment, both for local governments and some members of the conservation community in the region.

I know the public is unaware of many of the facts I've established (a BBC news program that I helped to create resulted in 35,000 phone calls, more than any other such program), but I know the public would be interested.

It's time for conservation experts and the media to accept that while they might have won the battle as far as the international trade in great apes is concerned, they're losing the war on the bush meat front. The fact that the message is presented by a new player in the field shouldn't be used as the argument to not take it seriously. There's also the question of how much longer picture editors can justify concentrating on the beauty of the beast and nature and ignore man's real relationship with the environment, just because it might be more controversial. OP

TOYO *views*

VOL. 2 NO. 2 January 1996

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The Backpacker's 6x7

The Mamiya 7 rangefinder camera allows you to travel light into the wilderness

Text And Photography By James Martin

I headed up canyon, tiptoeing across slimy rocks, balancing on fallen logs and scrambling through slide alder. The tiny camera bag didn't affect my balance or betray its contents: a medium-format camera. I carried no tripod, but I could steady the camera sufficiently by bracing myself against a tree. Unlike its bigger brethren, it didn't shudder as a mirror slammed open, and its weight didn't upend me. Its virtues were subtractive, consisting of sins uncommitted. The new Mamiya 7 rangefinder gave me a license to move light and fast.

For my money, medium format delivers the best compromise of size of format and size of camera. The size advantage over 35mm catches the attention of photo editors—it can be easily viewed without magnification. The gain in print quality is greater jumping from 35mm to medium format than from 2¼ to 4x5.

After years of lugging my medium-format SLR, with its attendant Gitzo and Foba ballhead, over mountains and through rain forests, I needed relief. The ravages of age and imprudence forced me to look for more lightweight equipment, but I was unwilling to give up the grainless images medium format affords.

First, the Mamiya 6 came to my rescue. This three-lens 6x6 rangefinder acted like an overgrown Leica—ergonomic handling, superlative glass, top-flight construction. As I adapted to a new way of shooting, I learned to understand why some people swear by rangefinders while others swear at them.

First, rangefinders lack depth-of-field preview and TTL metering. You determine depth of field by using the markings on each lens instead of checking through the lens. The loss of TTL metering meant I'd have to think when using filters instead of depending on the meter.

Two problems remained. The 6 yielded a square transparency, but the editors at my stock agency preferred a rectangular format. I often cut my images down to 645, squandering some

With the Mamiya 7, you can travel lightly into rugged landscapes such as the Oneota Gorge in Washington state and bring back a full 6x7 image.

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of the advantages of carrying the larger camera. Also, the viewfinder in rangefinders limits the possible focal lengths. The longest telephoto for the 6 is 150mm; therefore, the widest lens reaches only 50mm, equivalent to a 28mm in 35mm. I missed the sweeping foregrounds a wider lens supplies.

With the 7, Mamiya corrected the few limitations that mattered to me. The 6x7 gave me a rectangular image and banished the wide-angle limit.

At first glance, the 7 looks like the 6. To gain the crucial additional centimeter of film, the designers added only a centimeter of width and one ounce of weight to the body. It tips the scales at a svelte two pounds, and the sleek body fits the hand well. The fingers of the right hand wrap

SPECIFICATIONS

Mamiya 7

Camera Type: 6x7 rangefinder
Format: 6x7cm medium format
Lens Mount: Mamiya 7
Focusing: Split-image, 60mm baseline rangefinder
Exposure Metering: Center-weighted metering, sensor in viewfinder
Exposure Modes: Aperture priority AE or manual
Exposure Compensation: ±2 EV in ⅓-EV steps
Shutter Speeds: Electronically controlled lens-shutter with 4 to 1/500 sec., X-sync at all speeds
Film Speed: ISO 25-5000 set automatically with DX-coded cassettes; ISO 6-6400 settable manually
Viewfinder: Coupled rangefinder with auto-indexed bright-line frames; automatic parallax compensation; separate ultra-wide-angle optical finder supplied with 43mm lens
Film Transport: Manual
Flash Sync: All speeds
Self-Timer: Electronic with 10-sec. delay
Power Source: One 6-volt 4SR44 lithium battery
Dimensions: 6.26x4.41x4.84-inches (without lens)
Weight: 2.03 pounds (without lens)

snugly around a grip built into the body, and the operating controls are conveniently placed.

Like the 6, the camera comes equipped with safety controls to ensure that the film is exposed properly. To change lenses you must engage the dark slide, which protects your film from an accidental flood of light, and the shutter won't operate unless all systems are ready to go. Twisting the pressure plate a quarter-turn changes the film setting from 120 to 220. A self-timer gives the lonely photographer a moment to dash into his or her shot.

The 7 comes with aperture-priority exposure metering and exposure compensation two stops in either direction. LEDs in the viewfinder blink for establishing manual exposures. They also warn when the batteries are on their last legs and blink when over- or underexposure threatens.

The camera's leaf-shutter lenses yield several advantages over focal-plane shutters. The lenses allow flash sync at all speeds, from 4 to 1/500 sec. The risk of camera shake when a mirror slams open at the beginning of an exposure doesn't exist, so the mirror lock-up ritual can be dispensed with. The tiny, low-mass shutters cause almost no vibration during exposure so camera shake is less of a problem, and you can use a smaller, lighter tripod and head. Hand-held shooting produces acceptably sharp images at slower speeds. The shutters are so quiet that the least noise drowns them out.

Scrapping the mirror and the space to house it shed weight and shrank the dimensions of the Mamiya 7. Without a mirror, the lenses can sit closer to the film plane, making it easier for the designers to compensate for chromatic anomalies and other lens aberrations.

The Mamiya 7's viewfinder reduces many rangefinder limitations. The view is bright, making even dimly lit compositions easy to see. With each lens change, the frame lines inside the viewfinder compensate for the new focal length. A small split-image rectangle confirms focus. It's easy to use if the scene has strong lines or texture, but SLR focusing is easier.

The glory of the Mamiya is in its glass. I doubt that anything on the market exceeds the lenses' sharpness and freedom from aberrations. The system includes a 43mm *f*/4.5

(Cont'd on page 95)

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Sports Spirit

(Cont'd from page 53)

So I got up there at maybe 8 a.m. Somebody had left a camera there overnight—taped a camera up in below-zero temperatures to save his spot! It had frost all over it. It's crazy.

OP: What suggestions do you have for shooting in the snow and cold, as far as protecting your equipment?

Adamski-Peek: I've never had my cameras winterized. If you run into sub-zero temperatures, I think you'd have to. But I've shot in 30-below zero and haven't had any problems.

Where you have problems is with batteries. You must have some way to keep your batteries warm or have lots of extras. I have a camera where I have the battery pack off. It's connected to the camera, but the batteries are in my pocket where it's warm and I pack them with handwarmers.

I bring chamois so that if the front of the lens gets wet, I can wipe it off. And I protect the camera with either a Gore-Tex® cover or plastic to prevent it from contact with the moisture. That goes for cold weather or rain, too.

You also have to protect your hands. When I went to Lillehammer, between myself and my assistant we went through two cases of handwarmers—we used them for our cameras, for our hands, for everything.

OP: If you were to use one camera and one or two lenses, what would you use?

Adamski-Peek: I use the Canon EOS-1N all the time. It has five different autofocusing zones, so it's not just center (focusing). I mean, how often do you want everything right in the center? It's fantastic. I'll shoot a series of a runner coming toward me, and I'll switch the focusing zone as I'm going. If you get used to it, you can do that. It's a good system.

I use the Canon 20-35mm zoom lens a lot, not for events, just for my overall shooting. I use the Canon 200mm *f*/1.8 all the time and occasionally with a 1.4X converter. It's a phenomenal lens. It's very fast, so when I get into really low-light situations I can still shoot. I can shoot things that I couldn't shoot before on slower film.

OP: What films do you use most?

Adamski-Peek: Probably 95 percent of my work is done on Kodak Lumiere (LPP) and Lumiere-X (LPZ). Occasionally, I use Kodachrome 200.

I use a lot of Polaroid Polapan for black-and-white. It's a transparency film, so you get a positive image. The problem is that it's a really delicate film, so it scratches easily. There's also a new Agfa black-and-white transparency film that I've used called Scala.

I still use a variety. I tend to use more Kodak because I just know that film better. But I sometimes use Fujichrome Velvia if I want very intense colors. I don't use it very often, though. It's a little bit too warm for my tastes. It's hard to control, very contrasty.

OP: When you're shooting ski races, how do you keep the athletes in focus when they're coming toward you really fast?

Adamski-Peek: You prefocus on the spot where you think there's going to be the most action. It might be six inches this side of the gate, six inches that side of the gate or even between the gates, depending on where you

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Outdoor Photographer

think the best action is going to be. I then shoot it prefocused with a high-speed camera as they go by.

OP: On what kind of outdoor photography are you now concentrating?

Adamski-Peek: I'm not shooting fewer events. I'm definitely shooting more advertising and commercial work and some editorial work.

OP: Which photographers have influenced you the most?

Adamski-Peek: The photographer who really inspired me is Mark Kauffman, who just recently passed away. He was with *Life* magazine for years. He just was really encouraging about my work. And he thought nothing was impossible. You'd just figure out how to do it. Like, "You're going to have problems and your job is to solve the problems. It's not always going to be the perfect light and the perfect this."

And there's another photographer named Rob Gage. I really admire his work, as well. He's always been really encouraging, too. As far as the masters, I love Jacques-Henri Lartigue. He's from the turn of the century. He did the quirkiest photography.

OP: Being a photographer and a mother with two small children, how do you manage to balance that?

Adamski-Peek: Actually, it's really hard. We travel about a week a month, so that's being gone one out of every four days, which is quite a bit. I try not to travel much more than that. I try not to do really long shoots. More than maybe nine days isn't too good. I can't handle it and my kids can't handle it either. I really miss them.

But I'm lucky. We live in such a great place here. There's so much to shoot right in my backyard. And so many great people, great athletes. So I don't have to travel that much.

I think I'm a better mother because I have a successful career as opposed to staying at home and having an unsuccessful or boring career, or one I didn't like.

I have faxes coming in from Japan and Belgium and all over the world on a regular basis. So I think my children are going to grow up seeing that you can work in a location and have a global business at the same time. I think that's a really healthy thing for them. And I think it's healthy for my two girls to see it's okay to work as a mom. Because they're probably going to have to work when they get older.

The other thing that I've done—this is important—is that I've really tried to pick and choose my clients. And I try not to go after clients that I know are really high-stress or high-maintenance. I like to work with clients with whom I get along well, for whom I can do the right type of work. And clients that are understanding of the fact that I'm a mother. If they're not understanding of that, I don't really want to work with them anyway. It's not worth it. Life is too short. **OP**

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For more information, contact: The Rocky Mountain School of Photography, P.O. Box 7697, Missoula, MT 59807, (800) 394-7677.

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For more information, contact: Wilderness Travel, 801 Allston Way, Berkeley, CA 94710, (800) 368-2794.

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January 30-February 4, 1996

Join master photographers Sebastiao Salgado, Arnold Newman, Gordon Parks and others, as well as photography editors from *Life*, *Time*, *People* and *Entertainment Weekly* in Palm Beach, Fla., for a celebration and exploration of the issues facing those who work in the fields of photography and digital imaging. Portfolio reviews, seminars, workshops and panel discussions, plus networking and recreation activities are featured.

For more information, contact: Palm Beach Photographic Workshops, 55 NE 2nd Ave., Delray Beach, FL 33444, (407) 276-9797.

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For more information, contact: Osprey Photo Workshops and Tours, 2719 Berwick Ave., Baltimore, MD 21234, (410) 426-5071.

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Monument Valley - Grand Canyon, AZ	Apr. 20 - 26
Arches National Park in Springtime, UT	May 11 - 17
Yosemite National Park & Mono Lake, CA.	May 18 - 24
Western Colorado	June 8 - 14
Yellowstone and Grand Tetons in Spring, WY	June 15 - 21
Glacier National Park, MT	July 6 - 12
Canadian Rockies	July 13 - 21
Namibia & South Africa Scenery	Aug. 10 - 18
Namibia & South Africa Wildlife	Aug. 19 - Sept. 2
Grand Tetons in Autumn, WY	Sept. 21 - 27
Yellowstone in Autumn, WY	Sept. 28 - Oct. 4
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For more information, contact: Kathleen T. Carr Photography, 2126 Green Hill Rd., Sebastopol, CA 95472, (707) 829-5649.

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For more information, contact: Joseph Van Os Photo Safaris, P.O. Box 655, Vashon Island, WA 98070 (206) 463-5383.

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For more information, contact: Santa Fe Workshops, P.O. Box 9916, Santa Fe, NM 87504, (505) 983-1400.

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Point Lobos - ***Frans Lanting** - March 29-April 2*
Smokey Mountains - ***Bryan Peterson** - April 19-23*
Smokey Mtn. - *Photo School / **GAPW Team** - April 26-30*
Ottawa Canada - *Marketing / **Bryan Peterson** - May 10-14*
Cape May - ***Art Wolfe** & GAPW TEAM - May 17-21*
Atlanta Lecture - ***Art Wolfe** - May 25*
Banff N.P. - ***John Shaw** - June 14-18*
Grand Tetons N.P. - ***Pat O'Hara** - June 21-25*
Olympic N.P. - ***Bryan Peterson** - June 28-July 2*
Smokey Mtn. - *Photo School / **GAPW Team** - July 12-16*
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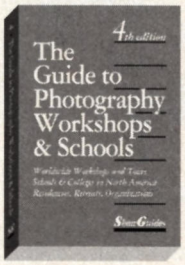

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Australia: June 29-July 20
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Robert Howard
Lebanon, PA

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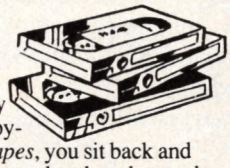

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Karen Lorensen
Gallup, NM

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Louis Barton
Dallas, Texas

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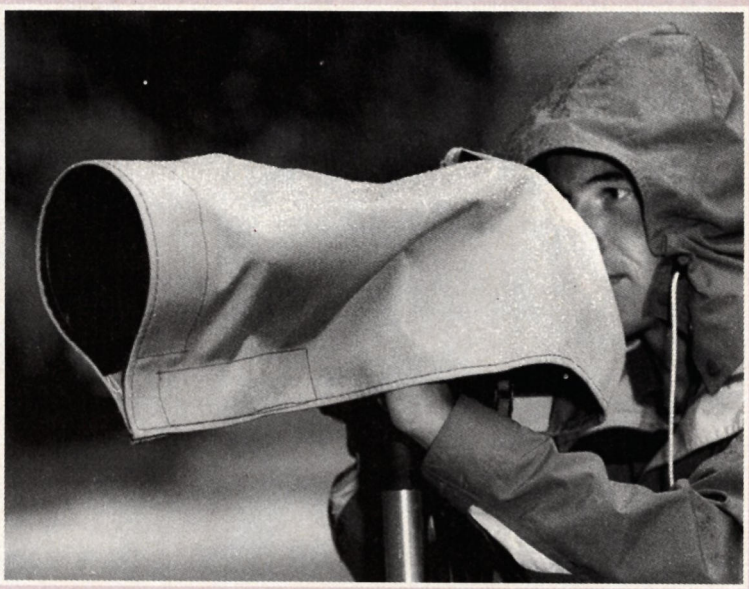
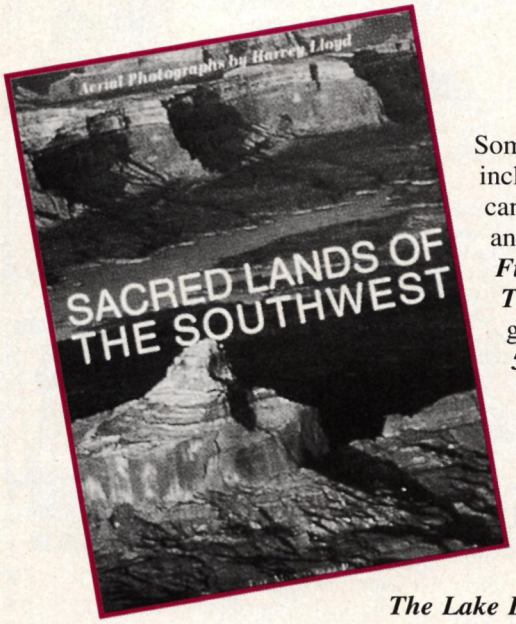


What do you do when your camera is all set up with a big lens, you're patiently waiting for anticipated wildlife action, and it starts to rain? You might pull out the **Camera Raincoat**. This cover was designed by a sports photographer who had to be outside at sporting events in all kinds of weather. There's ample room under the raincoat for focusing, a flap covers the eye cup when you're not shooting and a convenient slot in the smaller models allows you to put your camera strap around your neck. Made of durable, waterproof Cordura, the raincoat is available in a variety of colors (including camouflage) and sizes to fit almost any lens. Prices range from $40 to $75, depending on the size of the lens covered.

For more information, contact: PhotoFAX!, 815 E. Parkway South, Memphis, TN 38104, (901) 722-8158.



New Books

Some recent books of interest to the outdoor enthusiast and photographer include ***Bird Brains*** by Candace Savage (Sierra Club Books)—Now you can find out how smart those crows, ravens, magpies and jays really are and enjoy some great bird photography;

Field Guide to Photographing Birds and ***Field Guide to Photographing Trees*** by Allen Rokach and Anne Millman (Amphoto)—Two new how-to guides that cover these special areas of outdoor photography very well;

50 Best Short Hikes in California Deserts by John Krist (Wilderness Press)—The California desert is overflowing with great photo opportunities and this book will get you to them;

Frogs by David Badger and John Netherton (Voyageur Press)—Covering the extraordinary range of frogs, this book includes some information on photographing them as well;

The Hasselblad Manual, Revised Fourth Edition, by Ernst Wildi (Focal Press)—Wildi updates this classic to include the latest models;

The Lake Erie Shore by Connie Smith Girard (March Fourth Publishing)—This photographic journey around Lake Erie shows off its natural history;

Sacred Lands of the Southwest by Harvey Lloyd (Monacelli Press)—A large-format picture book that celebrates the Southwest landscape with most of the shots taken from the air;

Wild Cats of the World by Art Wolfe and Barbara Sleeper (Crown Publishers)—A spectacular book of photos and text about the wonders of life as a wild cat;

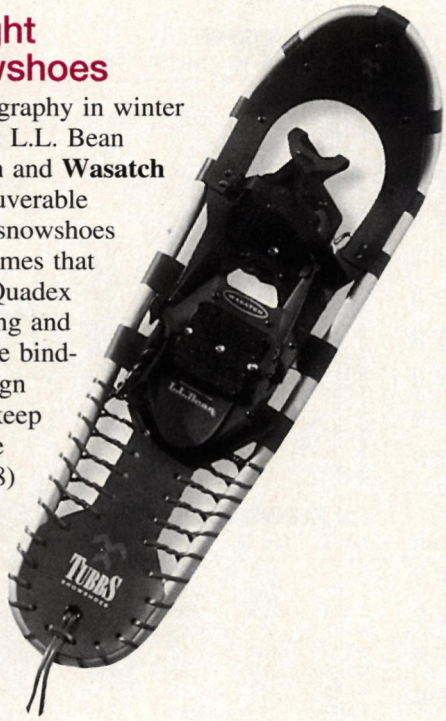
The World of the Fox by Rebecca Grambo (Sierra Club Books)—A beautiful portrait of this popular, yet sometimes misunderstood member of the dog family.

New Belt Pack

When you're out on a relaxing jog through the outdoors, you might want a camera along, but not a heavy load of camera equipment. Lowepro just introduced the **Off Trail Belt Pack** that might be just perfect. This little camera bag fastens comfortably to your waist with BatWing compression straps and includes a mesh lumbar pad. It has enough room for an SLR with lens and includes two removable SlipLock lens cases. The exterior is tough, water-resistant and non-abrasive, and an overlap zipper on top keeps water out. Closed-cell foam provides impact protection. Price: $60.

For more information, contact: Lowepro, 2194 Northpoint Pkwy., Santa Rosa, CA 95407, (707) 575-4363.

Lightweight Aluminum Snowshoes



To find the best spot for photography in winter often means you need snowshoes. L.L. Bean offers the tough **White Mountain** and **Wasatch snowshoes** for lightweight, maneuverable travel through deep snow. These snowshoes are made of rugged aluminum frames that require no maintenance and use Quadex decking that resists sagging, tearing and fraying, even in extreme cold. The bindings feature a "strap-and-go" design with integrated control wings to keep feet from sliding side-to-side. The White Mountain snowshoes ($218) weigh only 3.5 pounds, while the larger Wasatch design ($238) offers greater flotation in the snow and weighs 4.5 pounds.

For more information, contact: L.L. Bean Inc., Freeport, ME 04033, (207) 865-4761.

Free Outdoor Scenes Screensaver

If you have a computer and are connected to the World Wide Web, you can get some very nice outdoor screensaver images for free. **Tourism British Columbia offers a set of 20 screen savers** that include scenic locations around the province, as well as wildlife and sports. To download your set, visit Tourism British Columbia's Web site at http://www.tbc.gov.bc.ca.

We'll Lead You To Places that Bear Watching.

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Arctic World of Wager Bay (July)
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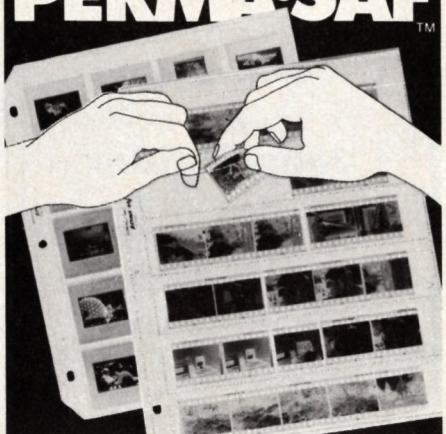

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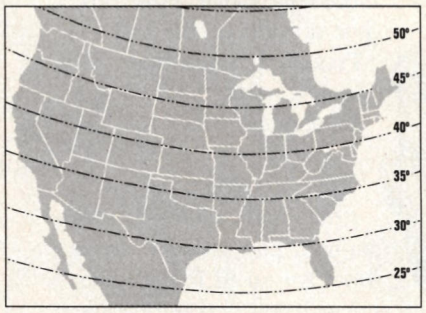

This chart will help you be in the right place at the right time by allowing you to plan your sunrise, sunset, moonrise and moonset photos ahead of time. You'll know exactly where to be with your camera for the photo composition you want to make long before the sun reaches the horizon. Find the nearest date at top and the latitude nearest your own in the column at left. Where the two intersect, you'll find the true (or map) bearings for rise (R) and set (S), rounded to the nearest degree. When using a compass to find the spot on the horizon where the sun or moon will rise or set, obtain the magnetic declination (variation) for your area from a USGS topographic map or other source. If the declination is east, subtract it from the bearing listed below to obtain the magnetic compass bearing. If the declination is west, add it. The result is the compass bearing to use in the field. *All data in Almanac is obtained through the SUNTRACKER program, written by Charles Krebs.*

SUNRISE/SUNSET

Latitude	Feb. 3	Feb. 10	Feb. 17	Feb. 24
20° N	R-108	105	103	100
	S-253	255	257	260
25° N	R-108	106	103	100
	S-252	254	257	260
30° N	R-109	106	104	101
	S-251	254	257	260
35° N	R-110	107	104	101
	S-250	253	256	259
40° N	R-111	108	105	102
	S-249	252	255	258
45° N	R-113	110	107	103
	S-247	250	254	257
50° N	R-116	112	108	104
	S-245	248	252	256
55° N	R-119	115	110	106
	S-242	246	250	255
60° N	R-123	119	114	108
	S-237	242	247	252
65° N	R-131	124	118	112
	S-230	236	243	249

FULL MOONRISE/MOONSET

Latitude	Feb. 3	Feb. 10	Feb. 17	Feb. 24
20° N	R-074	102	106	075
	S-287	260	256	286
25° N	R-074	103	106	075
	S-287	259	255	287
30° N	R-073	103	107	074
	S-288	259	255	288
35° N	R-072	104	108	073
	S-289	258	254	289
40° N	R-071	105	109	072
	S-291	257	253	290
45° N	R-069	107	111	070
	S-292	256	251	— —
50° N	R-067	108	113	068
	S-295	255	249	— —
55° N	R-064	— —	116	065
	S-298	253	246	— —
60° N	R-060	— —	120	062
	S-302	251	242	— —
65° N	R-053	— —	126	056
	S-309	247	237	301

MOON PHASES

○	Full	Feb. 4
◑	Last Quarter	Feb. 12
●	New	Feb. 18
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LARGER FORMATS

(Cont'd from page 81)

wide-angle (equivalent to about 21mm in 35mm format), a 65mm *f*/4 wide-angle, an 80mm *f*/4 standard lens (actually a mild wide-angle) and a 150mm *f*/4.5 short telephoto, equivalent to 71mm on a 35mm camera.

While all the lenses earned my admiration, the 43mm *f*/4.5 captured my heart. It's the widest non-fish eye available on a 6x7 system with interchangeable lenses, offering a 92-degree angle of view.

The glory of the Mamiya is in its glass. I doubt that anything on the market exceeds the lenses' sharpness and freedom from aberrations.

The 43mm exacts an unusual compromise. The in-camera viewfinder clips the edges of the field of view. To encompass the full view, an accessory viewfinder slides into the hot shoe atop the body. Composing a shot requires focusing with the in-camera finder and framing with the dedicated viewfinder. The photographer adapts quickly to the extra steps, but it takes a bit more concentration.

The 43mm lens also allows for true panoramas. An optional 35mm panoramic mask fits over the film plane, and the cassette holder and take-up reel fit into the camera. An external rewind crank screws into the tripod socket.

The Mamiya 7 balances unsurpassed virtues against a small number of inconveniences. Although it's the wrong camera for a Serengeti safari and addicts of auto-everything cameras may find withdrawal too distressing, most days the little Mamiya will be my first choice. Whether I'm wandering the canyons of the Southwest or Manhattan, I can travel unencumbered without compromising on what matters most, the quality of the images. OP

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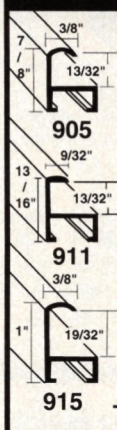

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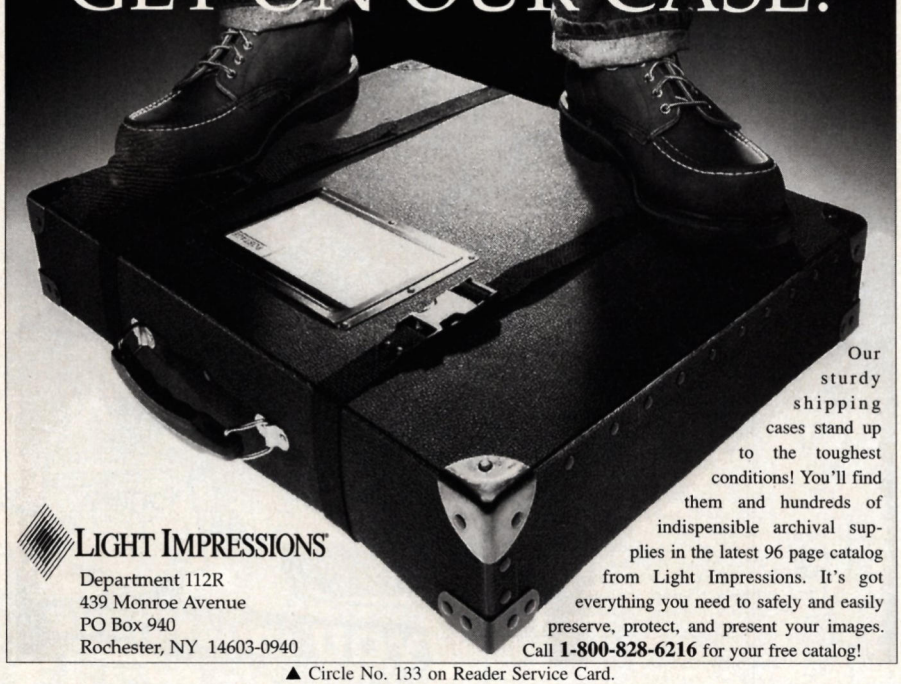

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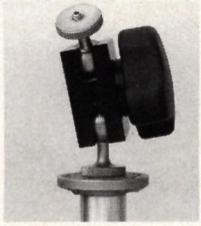

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WILDSIDE

(Cont'd from page 24)

out the jesses showing. You can get great close-up shots, shots you'll never get in the wild.

The park has a large herd of bison, elk and a number of white-tailed deer in a compound of about 30-plus acres. Ordinarily, these animals would be in midday seclusion, but the game managers put out feed for them daily at 1 p.m. The animals have changed their living pattern and start drifting to the observation deck at about 11:30 a.m.

The entire park is built on reclaimed strip mines, but the earth has now healed itself. There are numerous walking trails over the entire area, which is heavily planted with all types of native grasses, shrubs and trees, making it a boon to wildlife. Many small ponds dot the area and, late in the evening, beavers are active in some of them. As the park is a refuge, many other native birds and animals abound.

On the Old Wagon Trail, the park has a pair of sandhill cranes that have been pinioned. Don't photograph them on the side where they have the shortened wing feathers. Wait until they turn around and you'll be able to get full body shots as well as close-ups. The birds are banded, but then so are many of the wild birds. The mallards, wood ducks, mergansers and the lesser scaups seen on the ponds are all wild birds and do keep their distance.

Canada geese and their goslings are common in spring and are far more tame than the ducks. A wild Canada goose is among the wariest of all birds; ones that have become accustomed to being protected are the most trusting. Canada geese today are probably the most numerous and easily photographed of all waterfowl. The tremendous increase in their numbers everywhere is a tribute to the dedication of hunters and their money, which afforded the research, restocking and protection that brought these numbers into being.

The visitor and nature centers at the Wildlife Prairie Park are outstanding. Evening programs are offered, featuring "starlight walks," and one of the highlights is listening to the wolves howl.

For more information, contact: Wildlife Prairie Park, 3826 N. Taylor Rd., RR # 2, Box 50, Peoria, IL 61615, (309) 676-0998. **OP**

CAREER CHANGE

(Cont'd from page 65)

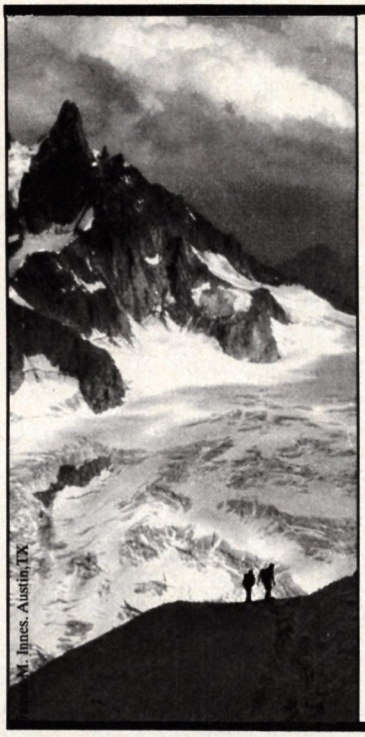
into marketing my work, and my health has had more ups and downs than a corkscrew roller coaster. Fatigue has limited the length of my work day. I usually struggle to work a four-hour day, which is possible only when I rest frequently. Aside from the health obstacles, trying to make it in the world of photography has been as hard for me as it is for the next person.

Still, my efforts have been very successful. I'm bringing in a sustainable income and working on increasing my exposure through advertising and publishing. I've set dates to show my work in galleries and at university campuses. There have also been opportunities to work with interior decorators, selling my work as office decor.

I spend as much time as possible getting out and creating more images. To make ends meet, I do wedding photography, portrait work and sports team photos. My quest to successfully switch to a new career in outdoor photography, where my passion truly rages, isn't complete. I may never achieve all of the lofty goals I've set; however, I'm well on my way.

The catalyst that changed my career path isn't one I would wish on my worst enemy. What seemed to be a major disruption in my life became the turning point of my career. Pursuing a career in photography has been enjoyable, profitable and fulfilling. Anyone with the motivation and desire, who is willing to make certain sacrifices, can do what I've done. There's always room in any field for those who are truly driven from within. But it takes more than a little patience and a shutter-happy finger. **OP**

***Scott C. Woodcox** photographs wildlife and landscapes. His favorite places to shoot include the Teton and Wind River mountain ranges of Wyoming, Glacier National Park in Montana and the red-rock country of Southern Utah.*



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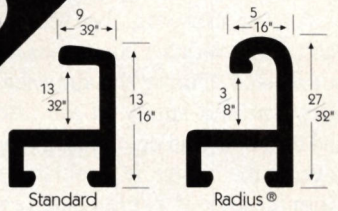

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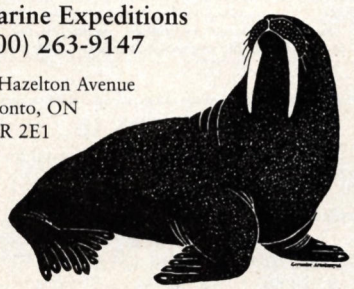

OTHER ALASKA

(Cont'd from page 32)

Canadian line to New York by tunneling under the Bering Strait. In their optimism, they bought a train and transported it here, never to move again—"The Last Train to Nowhere."

Alaska is a richly beautiful state for any outdoor photographer, but its historic side is easy to overlook against its magnificent landscape. Check it out—it's exciting to stand and photograph at the very spots where early adventurers tried to get rich quick.

A 35mm SLR with wide to telephoto lenses is great, the wider-angles for scenics and historic buildings, the telephotos for the wildlife that you'll always find up here. For hiking around historic sites, you may find it helpful to carry a compact camera outfit and a wide to moderate telephoto zoom, such as a 28-80mm. Use the 28mm for the overall shots of the area, then zero in on interesting details with the 80mm end. A tripod is essential.

Use slower, more colorful films for scenics and historic buildings, but be sure to bring some faster film, too. The weather often brings clouds and rain, especially along the coast, and you may welcome the extra speed.

As for clothing, be wary of the changeable weather conditions throughout Alaska. During the summer, it can be warm and sunny in the afternoon and turn cool and damp just a few hours later. In the winter, it's cold and sunny, bitter cold and sunny and cool and damp, and the dampness can really cut through you. A Gore-Tex® or Activent® jacket will keep you dry without a humid build-up underneath. Be prepared to add or take off layers of clothing. Inland, it can be very hot in the summer and bitter cold in the winter.

For more information about travel to Alaska, contact: Alaska Division of Tourism, P.O. Box 110801, Juneau, AK 99811, (907) 465-2010; Nome Convention and Visitors Bureau, P.O. Box 240, Nome, AK 99762, (907) 443-5535; Skagway Convention and Visitors Bureau, P.O. Box 415, Skagway, AK 99840, (907) 983-2854. OP

*Over the past 15 years, **Clark James Mishler's** work has been published in numerous regional, national and international publications. He's the president of the ASMP-Alaska chapter.*

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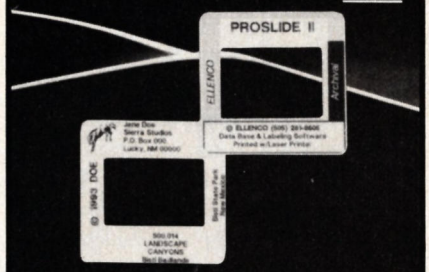

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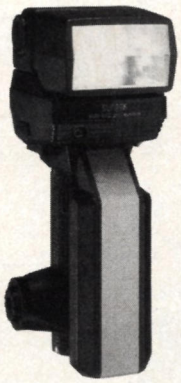

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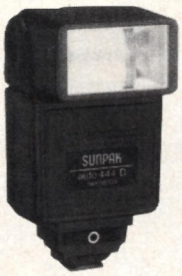
444D



When total flexibility is needed, only the 444D will do. Uses the full range of Sunpak dedicated modules that provide TTL, Autofocus assist, etc. Offers 3 auto f-stop settings, manual with power ratio to 1/16th power, bounce and swivel head, multi-position zoom head provides Guide #120-170. Can be powered by 4 AA, High voltage packs or AC. Optional off-camera cords maintain dedication when the flash is attached to a bracket. Module required.

Tokina

AT-X AF Series Lenses

Using SD glass (Super Low Dispersion) for best sharpness and resolution at all focal lengths and focusing distances.

Tokina AT-X Series are internationally appraised for their remarkable overall performance. Now you can get the AT-X Series lenses for your autofocus SLR's.

A patented focusing system IF (Internal Focusing System) is used with the Tokina ATX 100mm f/2.8, 100-300mm f/4, 300mm f/2.8 and 400mm f/5.6. This unique system allows quick focusing and excellent balance which also assures superior image quality.

Tokina LENSES

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90/2.5 ATX Macro	Call	—	—	—	—
1:1 Macro Ext.	89.95	—	—	—	—
100/2.8 ATX AF Mac	—	369.95	Call	Call	—
300/4 ATX APO AF	—	Call	909.95	Call	—
300/2.8 ATX APO AF	Call	Call	2599.	Call	—
400/5.6 SD	Call	—	—	—	—
400/5.6 ATX APO AF	—	Call	Call	Call	Call
20–35/3.5–4.5 Mac AF	—	Call	Call	Call	Call
24–40/2.8 ATX AF	274.95	Call	514.95	Call	Call
24–70/3.5 Macro	174.95	—	—	—	—
28–70/3.5 Macro SD	Call	—	—	—	—
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28–70/2.8 ATX AF	—	269.00	—	—	—
28–70/2.6-2.8 ATX Pro	—	Call	Call	Call	Call
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28–200/3.5 AF	Call	229.00	—	209.95	—
60–300/4-4.5 Macro	219.00	229.00	—	229.00	—
70–210/4–5.6 Macro	Call	Call	159.95	Call	—
80–200/2.8 ATX APO	Call	Call	Call	Call	—
80–200/2.8 ATX APO Pro	—	829.90	969.90	829.90	—
100–300/4 ATX AF	—	Call	919.95	Call	—
150–500/5.8 ATX	Call	—	—	—	—
2X Teleconverter	94.00	—	—	—	—

SD Lenses

When using a wide aperture and long focal length lens. It is difficult to control chromatic aberration. Tokina lenses, which have a distinctive red line on the lens front, use high quality SD glass to minimize chromatic aberration, providing the sharpest image possible.

AT-X Pro 28–70mm f/2.6 AF

28-70mm Zoom

to fit Minolta, Nikon D, Pentax, Canon. Newly redesigned, with a new focusing system to increase AF speed. Durability has also been increased by using an all metal body. Multi-coating has been applied to a larger number of lens surfaces which improves contrast while reducing reflections and ghosting. HLD (High Refraction Low Dispersion) glass is still being used with this new version.

AT-X 80–200mm f/2.8 AF

80-200mm Zoom

to fit Minolta, Nikon, Canon
Unsurpassed in its outstanding performance. Unprecedented because of the brightness of its f/2.8 maximum aperture, this lens captures sports action in the fines detail. Its SD glass thoroughly compensates for chromatic aberration.

ATX 300mm f/2.8

AT-X 300mm f/2.8 AF

to fit Minolta, Nikon, Canon
Employs two SD glass elements; its precision engineering allows it to respond quickly to rapid shooting action. With Tokina's patented unique IF system you won't miss a beat of the action.

100-300mm f/4

Kenko

Auto Focus MC7 2X Teleconverters

A high quality 7 Element Teleconverter Multi-Coated for optimum sharpness, These convertors Double the Focal length of your lens while maintaining full AF functions of your SLR (works on all lenses with a maximum aperture of f/4 or faster (slower lenses will only work in manual focus mode)

Available for Canon EOS, Minolta Maxxum , Nikon AF and Pentax AF

(LN2XX_ _) ***$139.95***

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Available for Canon EOS, Minolta Maxxum , Nikon AF and Pentax AF

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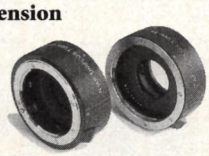
Kenko Autofocus Extension Tubes



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Available for: Canon EOS , Minolta AF, Pentax AF, Nikon AF. *Please Specify*

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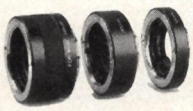

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(use with manual focus function)
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Available for: Canon EOS, Minolta AF, Pentax AF *Please Specify* ***$119.95***

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PENTAX MANUAL SLR's
P30T 169.95 K1000 179.95

SERIES A LENSES
50/2A 52.95 35-80 94.95
80-200 109.95

PENTAX ACCS.
AF-280T Flash 159.95
AF-400T w/Clamp, PC Cord Bracket&Battery Holder 399.95

PENTAX LX
LX Body w/screen Call
Watch Data LX 49.95

Polaroid

INSTANT CAMERAS
Procam Instant 184.95
Spectra SE 94.95 Spectra 2 79.95
Captiva 109.95 Captiva SE 116.95
Captiva Date 159.95
Impulse AF 74.95
One Step w/Flash 29.95

PASSPORT CAMERAS
*FREE 3 669 TWIN PACKF/POLAROID W/PURCHASE OF 203
203 2-Lens w/Flash 614.00
403 4-Lens w/Flash 732.50
455 4-Lens w/Flash (Req. a 550 back) 717.95
Reduction Lens Set 74.95
AC Adapter 89.95
Spare Back f/203/403 84.95

YASHICA
DENTAL EYE II 1134.95
T4-AF 129.95
New T4 Wether Proof CALL
108 Multi Program 166.95
109 Multi Program 191.95
FX3 Super 2000 149.95

YASHICA ML LENSES
50/1.9 45.95
28-80 109. 35-70 89.95
75-200 107.95 CS14 Flash 9.95
FA 5,6 Screen f/230 AF 9.95

CONTAX
G-1 Compact AF* 1469.
* Free From MFR.
TLA-140 or Data Bk. w/Purchase
16/8 Call 28/2.8 Call
45/2 Call 90/2.8 Call
TLA 140 Call

Contax SLRs
*MFR. REBATES Up to $225 Call
RTS III * 2289. 167 MT* 539.0
ST 1429. S2 Call
RX Focus Assist Call

Contax AF
T2*AF Call T2*AF Bk Call
T2 Gold 60th Anniv. Ed 899.
TVS Zoom Call

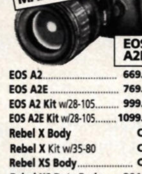
Zeiss MM LENSES
16/2.8 Call 180/2.8 Call
28/2.8 Call 300/4 Call
35/2.8 Call 28-85 Call
35/2.8 PC Call 35-70/3.4 Call
45/2.8 Call 35-135/3.5 Call
50/1.7 167. 80-200/4 Call
50/1.4 274. Mutar I Call
100/2 Call Mutar II Call
135/2.8 Call

CONTAX ACCS.
TLA-280 Flash Call
TLA-360 Call TLA-480 Call
86 Protect. Filter 29.95

Rollei
NEW Prego Micron Date 369.00
Prego Zoom AF 269.00
Prego Zoom AF Date 289.00
Classic 35 1649.00

EOS Canon

EOS 1N RS



HOVE MANUALS $19.95

EOS A2E

EOS-1N 1669.00
New EOS-1N RS 2499.00
EOS Elan 379.95
Elan Date Call
EOS Elan Kit w/28-80 USM 554.95
EOS Elan Kit w/35-80 USM 529.95
New Elan II Call
New Elan II Kit w/28-80 Call
New Elan II-E Call
New Elan II-E Date Call
New Elan II-E KIT w/28-80 Call

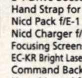
EOS A2........ 669.00
EOS A2E 769.00
EOS A2 Kit w/28-105........ 999.00
EOS A2E Kit w/28-105........ 1099.00
Rebel X Body Call
Rebel X Kit w/35-80 Call
Rebel XS Body........ Call
Rebel XS Date Body 294.95
Rebel XS Kit w/35-80 .... Call

EOS Flash & Acc.
200 E with Case 55.00
380 EX 169.95
New 540 EZ Flash 334.00
480 EG Outfit 509.95
New Ikelite TTL Slave Sensor 129.95
Slave Unit E 39.95
ML-3 Ringlite 189.95
TTL Hot Shop Adapt. III 64.95
TTL Distributor 46.95
Off Camera Shoe Adapt. 27.95
Connecting cord 60 39.95
Connecting cord 300 44.95
Off Camera Shoe Cord 47.95
Compact Battery Pack E 39.95
Transistor Pack E 136.95
Transistor Pack E Nicad 249.95

MISC. ACCESS
FD to EOS Macro Adapt 69.95
Ador FD to EOS Adapter 35.95
Bar Code Reader w/book 44.95
BP-5 Batt Pack 54.95
BP-50 AA Pk/Vertical Grip f/Elan II 64.95
BP-5B External Pk f/BP-50 59.95
New BP-8 f/Rebel 29.95
New LC-3 Set 309.95

EOS CASES and HOODS
Case F/A2, A2E 49.95
Case F/EOS-I 39.95
ES-C20 21.95
EW-60,60B,62,EW-63,65 19.95
EW-75,78 38.95
EW-83 25.95
ES-62,65,65-II, 71 20.95
ET-62,65,65-II 19.95

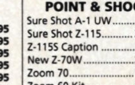
EOS-1/1N ACCCS.



E1 BOOSTER

Battery Pack f/EOS-1-N 129.95
E-1 Drive Booster 299.95
Hand Strap for E-1 24.95
Nicd Pack f/E-1 79.95
Nicd Charger f/E-1 239.95
Focusing Screens f/EOS-1 31.95
EC-KR Bright Laser-Mt Screen 54.95
Command Back E 1 194.95
Hove Manual f/EOS-1 19.95

Z-70W



AUTOFOCUS POINT & SHOOT
Sure Shot A-1 UW.......... Call
Sure Shot Z-115.......... 254.95
Z-115S Caption .... Call
New Z-70W.......... 209.95
Zoom 70.......... 144.95
Zoom 60 Kit.......... 138.95
TELE 80 Kit.......... 109.95
New Del-Sol Solar.......... 148.95
SureShot OWL.......... 69.95

CANON EF AUTOFOCUS LENSES

14/2.8 L USM	2319.	100/2	449.	35-80 USM	149.
15/2.8	699.	100/2.8 Mac	589.	35-105 USM	229.
20/2.8	499.	135/2.8 SF	389.	35-105	149.
24/2.8	359.	200/2.8L	714.	35-135 USM	304.
24/3.5L T.S.	1369.	200/1.8L	4499.	35-350 L	1999.
28/2.8	209.	300/4L	1089.	70-200/2.8L	1539.
New28/1.8 USM	499.	300/2.8L	4599.	70-210 USM	304.
35/2	Call	400/2.8 L	6999.	75-300 stabilzd	call
45/2.8 T.S.	1369.	New 400/5.6 L	1469.	75-300 II USM	249.
50/1.8 II	74.	500/4.5 USM	5799.	75-300 II	199.
50/1.4	359.	600/4L	9199.	80-200 II	144.
50/2.5 Macro	334.	20-35 USM	449.	100-300L	619.
Life Size.Conv.	219.	20-35/2.8 L	1569.	100-300 USM	327.
50/1 L	2529.	28-70/2.8 USM	1439.	2X AF APO	344.
85/1.2L	1899.	New 28-80 II	187.	1.4x AF APO	434.
85/1.8	374.	28-105 USM	329.	Ador 2x AF	74.95
90/2.8 T.S.	1369.	35-80 III	104.		

MACRO ACCESSORIES
Extension Tubes with Case
Canon EF-12 Ext. Tube 69.95
Canon EF-25 Ext. Tube 109.9

NEW "D" CLOSE UP LENSES
52mm 69.00 58mm 84.00
72mm 115.00 77mm 139.00

FILTERS

Kodak

Wratten Filters	3x3	4x4
Standard Filters	9.95	20.49
Special Colors	23.69	48.80
Neutral Density	19.95	40.49

ZEISS Softars
(by Heliopan) Softar #1, #2
49, 52mm 145.. 55,58mm 155..
62, 67mm 159. 72mm 175.
77mm @ 199.

KENCO GEL
Filter Holders
3x3 39.95 4x4 59.95

VOSS
Univeral Filter Holder w/Lens Hood 29.95

Pro 4
Lens Shade Gel Holder 49.95

SCHNEIDER

New 4X Multicoated (full frame 35mm) Call
New 4X (Gray, Pink or Blue) 109.00
6X (2/3 35mm) Call
8X (3/4 35mm) Call
6x6 Magnifier Call
Hasselblad Adapt f/6x6 74.95
10X Magnifier Call

TIFFEN
Buy any 3 Filters and Get 10% OFF these Prices

	812	Soft Contrast Sepia 2/3	SoftNet B&W	Soft FX Warm FX	Enhanc.	Pro Mist/Warm ProMist Ultra Contrast Warm Center Spot	Warm Polarizer	Vector Star	Hollywood Star North Star Hyper Star
49mm	10.25	27.25	24.95	28.95	Call	37.75	29.75	55.75	66.50
52mm	10.25	27.25	24.95	28.95	Call	37.75	29.75	55.75	66.50
55mm	10.25	27.25	24.95	28.95	Call	37.75	29.75	49.95	66.50
58mm	11.99	33.99	29.95	36.50	Call	43.25	36.95	64.75	77.50
62mm	15.25	43.25	41.75	45.00	Call	54.00	45.50	89.95	107.95
67mm	15.25	41.75	41.75	45.00	Call	54.00	45.50	89.95	107.95
72mm	27.25	56.95	54.95	61.25	Call	71.00	59.75	117.00	139.95
77mm	27.25	56.95	54.95	61.25	Call	71.00	59.75	117.00	139.95
Cokin P	45.95	61.95	61.95	62.95	Call	—	—	—	—

Tiffen–"Which Filter" VHS Video Tape 23.95

B+W
Buy any 3 Filters and Get 5% OFF these Prices

	UV/Sky	80A,80B,80C,81A,81B,81C,81EF,82A,82C, 85,85B - Close Up 1,2,3,4,5 Color: Red, Yellow Green Red	ND3/6/9XSoft Focus	Zeiss Softars 1,&2	Cross Screen	Polarizer	Circ. Polar.	Color Graduated	Soft Image Soft Spot Fog 1,2,3
39mm	24.95	29.95	24.95	—	39.95	74.95	79.95	—	—
49mm	16.95	16.95	16.95	139.00	32.95	31.95	62.95	38.95	23.95
52mm	16.95	17.50	17.50	139.00	34.95	34.50	65.95	40.95	24.95
55mm	19.95	20.95	20.95	145.00	36.95	36.95	74.95	45.95	27.95
58mm	22.95	24.95	23.95	145.00	38.95	38.95	77.95	48.95	29.95
B60	84.95	* 84.95	89.95	—	149.95	—	239.95	119.00	109.95
62mm	28.95	27.50	27.50	145.00	47.95	46.95	79.95	50.95	37.00
67mm	34.95	36.95	37.95	156.00	49.95	54.95	103.95	64.95	42.00
72mm	46.95	46.95	47.95	169.00	59.95	71.95	119.95	83.95	52.00
77mm	49.95	54.95	54.95	199.00	64.95	76.95	134.95	99.95	65.00
82mm	69.95	—	89.95	209.00	104.95	109.00	199.95	114.95	109.00
86mm	74.95	* 79.95	—	215.00	—	129.95	239.95	—	—
95mm	109.95	—	—	—	—	159.95	239.95	—	—

B&W EXTRA WIDE UV FILTERS 52mm 54.95 67mm 79.95 72mm 99.95

*(Excludes the 81A, 81B)

ADORAMA'S ADVERTISED PRICES INCLUDE ALL MFR. ACCESSORIES & ARE FULLY WARRANTIED. ORDERS SHIPPED PROMPTLY

LENSES
PRICE INCLUDES ANY CAMERA MOUNT

ΣSIGMA LENSES
MANUAL for **AUTO FOCUS CAMERAS**

LENS	all Mounts Same Price	Maxxum "I"	EOS/ Sigma	Nikon AF	Pentax Yash, OM
14/3.5	599.00	599.00	599.00	599.00	-
15/2.8	438.00	-	-	-	-
18/3.5	295.00	323.00	360.00	329.00	-
24/2.8	149.00	149.00	194.00	149.00	154.00
28/2.8	87.95	-	-	-	-
28/1.8	204.00	179.00	208.00	199.00	-
50/2.8 Macro	204.00	184.95	256.00	189.95	-
90/2.8 Macro	308.00	289.00	350.00	299.00	-
180/2.8 APO Mac.	769.00	769.00	769.00	749.00	-
180/5.6 APO Mac.	289.00	279.00	329.00	294.00	-
300/2.8 APO	2199.00	2199.00	2279.00	2199.00	-
300/4.0 APO Mac.	599.95	587.00	655.00	654.95	
400/5.6 APO	429.95	439.00	509.95	-	-
400/5.6 APO Mac.	619.00	619.00	724.00	724.00	-
500/4.5 APO	3190.00	3140.00	3240.00	3140.00	-
500/7.2 APO	554.00	549.00	589.00	579.00	
600/8	363.00	349.00	349.00	363.00	363.00
18-35/3.5-4.5 UC	439.00	Call	Call	Call	-
21-35/3.5-4.5	289.00	-	-	-	-
24-70/3-5.6 UC	155.00	155.00	174.00	154.00	154.00
28-70/3.5-4.5 UC	99.95	-	129.95	-	-
28-70/2.8-4 UC	128.00	Call	Call	129.00	139.00
28-70/2.8	293.00	285.00	299.95	285.00	-
28-105/4-5.6 UC	199.00	195.00	199.00	199.00	-
28-200/3.8-5.6 UC	219.00	209.00	219.00	209.00	229.95
35-80/4-5.6	79.95	Call	Call	79.95	79.95
35-135/4-5.6 UC	149.95	-	-	-	-
70-210/4-5.6 APO UC	174.95	169.95	-	-	179.95
70–210/4-5.6 UC	109.95	109.95	144.95	109.95	115.00
70–210/3.5-4.5 APO	277.00	269.00	289.00	277.00	-
70–210/2.8 APO	614.00	629.00	658.00	629.00	-
70-300/4-5.6 APO	284.00	279.00	Call	279.95	-
70-300 4/5-6 DL	232.95	199.00	199.00	199.00	219.95
75-300 4/5-6 DL	175.00	174.95	179.00	-	-
75-300/4-5.6 UC APO	219.95	-	-	-	-
1.4X AF Conv.	-	179.95	174.00	179.00	174.00

Tokina LENSES
MANUAL for **AUTO FOCUS CAMERAS**

LENS	Man. Focus	Maxxum	EOS	Nikon AF	Pentax
17/3.5	Call	—	—	—	—
17/3.5 ATX AF	—	Call	Call	Call	—
28/2.8	89.00	—	—	—	—
90/2.5 ATX Macro	Call	—	—	—	—
1:1 Macro Ext.	89.95	—	—	—	—
100/2.8 ATX AF Mac	—	369.95	Call	Call	—
300/4 ATX APO AF	—	Call	909.95	Call	—
300/2.8 ATX APO AF	Call	Call	2599.	Call	—
400/5.6 SD	Call	—	—	—	—
400/5.6 ATX APO AF	—	Call	Call	Call	Call
20–35/3.5–4.5 Mac AF	—	Call	Call	Call	Call
24–40/2.8 ATX AF	274.95	Call	514.95	Call	—
24–70/3.5 Macro	174.95	—	—	—	—
28–70/3.5 Macro SD	Call	—	—	—	—
28–70/2.8-4.5 Mac AF	—	149.95	189.95	149.95	—
28–70/2.6-2.8 ATX Pro	—	Call	Call	Call	Call
24–105/3.5–4.5	209.00	—	—	—	—
28–200/3.5 AF	Call	229.00	—	209.95	—
60–300/4-4.5 Macro	219.00	229.00	—	229.00	—
70–210/4–5.6 Macro	Call	Call	159.95	Call	—
80–200/2.8 ATX APO	Call	Call	Call	Call	—
80–200/2.8 ATX APO Pro	—	829.90	969.90	829.90	—
100–300/4 ATX AF	—	Call	1029.00	Call	—
150–500/5.8 ATX	Call	—	—	—	—
2X Teleconverter	94.00	—	—	—	—

TAMRON LENSES
Adaptall Mt. Additional — Complete w/case where supplied by mfr.

Adaptall for **AUTO FOCUS CAMERAS**

LENS	Man. Focus	Maxxum	EOS	Nikon AF	Pentax
17/3.5 SP	369.00	—	—	—	—
24/2.5_22	249.00	—	—	—	—
90/2.5 SP Macro	279.00	—	—	—	—
1:1 Macro Ext.	41.95	—	—	—	—
300/2.8 LD IF AF	2169.00	2649.00	—	2649.00	—
500/8 Macro	369.00	—	—	—	—
20–40/2.7–3.5 AF	—	699.00	699.00	699.00	—
24–70/3.3–5.6 AF	—	239.00	239.00	239.00	—
28–70/3.5–5.6 AF	159.00	* 114.00	—	* 114.00	—
28–80/3.5–5.6 AF	—	129.00	129.00	129.00	—
28–200/3.5–4.5 AF	299.00	299.00	299.00	299.00	299.00
35–105/2.8 AF	559.00	706.00	779.00	706.00	—
35–135/3.5 AF	299.00	—	—	—	—
60–300/3.8–5.4	349.00	—	—	—	—
70–210/4–5.6 AF	159.00	139.00	—	139.00	—
70–210/3.5 SP	349.00	—	—	—	—
70–210/2.8 LD AF	—	948.00	948.00	948.00	—
70–300/4–4.5 AF	—	269.00	269.00	269.00	—
80–210/4.5–5.6 AF	—	149.00	149.00	149.00	—
200–400/5.6 LD IFAF	—	629.00	629.00	629.00	—
2X Flat Field TC	139.00	139.00	139.00	139.00	—
1.4X Teleconverter	—	109.00	109.00	109.00	—

* Discontinued Special Offer

Vivitar
ALL MOUNTS SAME PRICE

19/3.8	109.00
24/2.8	79.95
28/2.8	69.95
New 100/3.5 Macro	139.95
105/2.5 Macro Series 1	369.95
500/8	129.95
17-28/4-4.5	139.95
28-105/3.5-4.5	199.95
28-105/2.8 Ser 1	264.95
28-210/3.5-5.6	189.95
70-210/2.8 APO Ser 1	259.95
70-210/2.8/4 QD	169.95
70-210/4-5.6Mac	99.95
New 100-300/5.6-6.7	124.95
100-500/5.6-8	449.95
2X Converter	49.95
2X Macro Converter	119.95

Series 1 AF Lenses

	Nikon-AF/Max	EOS
100/3.5 Mac	160.	189.
28-70/2.8	309.	345.
28-105/4-5.6	179.	—
28-200/3.8-5.6	249.	—
100-300/5.6-6.7	159.	189.

FLASHES
PRICE FOR DEDICATED FLASH UNITS DO NOT INCLUDE MODULES

SUNPAK

Auto Pro 120 J	259.95
120 J w/Battery Pack	314.95
120 J TTL w/Batt. Pack	Call
383 super	69.95
266D w/Module	45.95
433D w/Module	72.95
444D	88.95
New 355-AF w/module	47.95
433 AF w/module	84.95
544 149.95 555	174.95
DX8R Ringlight	164.95
New DX12 R Ringlight	229.95

DEDICATED MODULES

CA,OM,Y/C,RC	31.95
Canon EOS Module	36.95
Standard Module	23.95
Nikon.PK, TTL,KC	31.95
EOS, Maxxum, Nikon AF	86.95
Nikon F3, Minolta	44.95
Hasselblad Module	66.95
Bronica TTL	89.95

622 FLASH & ACCS.

New 622 Super w/Zoom	314.95
Zoom Head	39.95
Diffused Head	42.95
Ring Light Head	82.95
Bare Bulb Head	99.95
Wide Flash Head	38.95
Infra Red Head	42.95
CL-3 Cluster	69.95
QBC-6 Quick Charger	66.95
Dedicated Remote Cord	39.95
Filter Kit	26.95

SUNPAK ACCS.

510V Battery	44.95
510V Nicad Battery	79.95
510V Power Pack	69.95
TR-PAK II w/NC & Chrger	84.95
AC Adapter (specify)	31.95
CL-2 (544/555)	31.95
QBC5 Charger	31.95
QBC3 Charger	15.95
Ded Rem Sens Cord (f/333D,422D,444D)	39.95
#767 Filter Kit f/544,555	23.95
#738 Filter Kit f/300,400	23.95
#786 Tele-Zm f/544,555	29.95
#841 Tele-Fil f/400's 383	29.95
Auto Slave	26.95
Bounce Kit	24.95
Basic Grip w/Bracket	41.95
6x6 Bracket	27.95

QUANTUM

Q-Flash Model-T	359.00
Q-Flash Model-X	417.00

Metz

Hove Manual f/Metz Flash	19.95
32 Z-1	114.95
32 Z-2	134.95
32 MZ-3	164.95
40 MZ-2	319.95
50 MZ-5	539.95
50 MZ-5 w/Contr.	699.95
45-CL1 204.95 45-CL3	269.95
45-CL4	319.95
45 Series w/Nicad Add	44.95
Spare Nicad f/45 series	59.95
60-CT1 Dryfit	494.95
60-CT 4 Dryfit	619.95
Above w/Nicad Add	19.50
5320 Dry-fit f/60 series	59.95
5322 Nicad for 60 series	94.95
New Metz IR Ded Module for AF Cameras	79.95
P40 Battery Pack w/Charger	149.95
P50 Battery Pack w/Charger	309.95

MORRIS MINI SLAVE FLASHES

Mini Slave Wide (GN18)	24.95
Midi Slave	36.95
Maxi Slave	49.95

LUMIQUEST

Pocket Bouncer	16.95
Ultra Soft Bouncer	17.95
80-20 Bouncer	17.95
90-10 (Dennis Reggae)	20.95
Big Bounce	24.95
Midi Bounce	19.95
Snoot 18.95 Barn Doors	21.95
New Soft Box-2	25.95
New Soft Box Mini	16.95
Soft Box	23.25
Promax	39.99
Reflector Bounce Kit	34.95
BATTEREEZ	17.95

STO-FEN

Omni-Bounce	17.25
Twin-Bounce	17.25
Light Controller	9.95
Five color Omni's	27.95
Sensor shield 283/285	9.95

PARAMOUNT SYNC CORDS

Coiled 5'	13.50	16'	22.95
Straight 1'	10.9	15'	14.95
5' Gold	21.95		

Vivitar

283	64.95
285 HV	81.95
Metal Shoe 283/285	34.95
Metal Shoe w/test butt	44.95
Wein Flash Shoe f/Slave	44.95
2600D 29.95 2800D	44.95
550FD w/Mod	41.95

New 836AF Auto Zoom f/ EOS

Maxxum & Nikon AF	219.95
728 AF Flash f/Canon EOS, Maxxum I & Nikon AF	47.95
5000 Macro Flash	79.95

FLASH ACCS.

NC-3	24.95	SL-2	29.95
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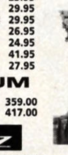

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AGA-96 Edit Controller Call
New DS-840 SVHS Call
New DS-850 Hi-Fi SVHS Call
AGWI Universal VHS-AG-770 Controller Call

VHS-C CAMCORDERS
PV-54 VHS-C EIS Call
PVS-64 w/Stabilizer Call
New PVIQ 305 Call
New PVIQ 405 Call
PVIQ 505 Color VF Call
New PVIQ 705 Call
Color VF Stabilizer Call

VHS CAMCORDER
PV 940 12x w/Light Call
PV 950 Color VF Call
PV-960 12X Call
PVS-770 S-VHS Digital w/EIS Call

Panasonic VCR'S
PV 4501 4 Head Call
PV 4512 Call
PV 4551 4 Head Call
PV 4562 4 Head Call
New PV 4564 Call
PVS 4566 S-VHS Call
PVS-4580 S-VHS 4HD Hi-Fi Jog Shuttle Call

PRO MONITOR VCR COMBOS
AG-560 10" Call AG-550 10" Call
AG-513 13" Call AG-520A 20" Call

PRO MONITORS
CT-1030M 10" Call
CT-1384Y 13" Call
CT-1331Y 13" Call CT-1384Y 13" Call
CT 1384 VY w/Tuner Call
CT-200M Multi System Call
CT-2084VY Call CT-2084Y 20" Call

PAL SYSTEM EQUIPMENT

SONY - PAL 8mm CAMCORDERS
TR350 Call TR 380 Call
TR 570 999.95 FX-280 619.95
TR 385 Call
New TR 880 8mm 48x Stablizr Call
New TR 2000 Hi-8 Stabilizer Call
New TR 550 8mm Stabilizer Call
SC-6 Snap 6X Zoom Call
SC-7 Snap 6X Zoom Stereo Call
FX-830 8mm Camc. w/3" Color Viewfinder & Stabilizer Call
New TRV 30 w/3" Screen Call
TRV 40 w/3" Screen Call
New TRV 50 8mm w/4" Screen Call
TRV 70 w/4" Screen Hi-8 Call
TR-3000 HR Call

JVC - PAL
GRAX46 VHS-C Camcorder Call
GRAX66 VHS-C with Light Call
GRAX68 VHS-C CVF Call
HRJ67MS Multi Sys. Hi Fi VCR 529.
P29 Multi System VCR 299

PANASONIC - PAL VHS-C CAMCORDERS
NVR 50 Call NVR 65 Call
NVR 500 Call NVS 850 Call
NVS 950 Call NVS 250 Call
NVAI 579.95 NVCSI- 399.95
NVR200 Call NVS-900 Call
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SD-2 2-Head Multi VCR 284.95
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New SD-300 4-Hd Multi Call

PANASONIC PRO
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NVH5100 S-VHS VCR w/TBC Call
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AG7750 S VHS Editing VCR Player Call

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GRAX700 VHS-C Call
GRAXB00 EIS Call
GRAX900 EIS w/Color VF Call
EZ1 Point-n-Shoot 399.95
GRS V3 w/3" Color Finder 549.95
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New GRSZ 9 S-VHSC Digital Call
New HRS 5100U S-VHS 499.95
New HRS 5200U S-VHS Call
New HRS 7100U S-VHS 599.95
New HRS 7200U S-VHS Call

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New VLL-64 - VHS Call
New VLL-63U - VHS Call
VLL390U VHS Slimcam Call

NEW 8MM CAMCORDERS
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New VL E 37U 8mm View Cam Call
VLE 47U View Cam w/4"screen Call
HVL 420 Hi-8 View Cam Call
New HV-LH 450 Hi-8 View Cam Call
Sports Pack for view cam Call
Sun Shield for view cam 54.95
View camTelePort Call

Canon

New ES5000 Hi-8 20X HI-8 w/Eye Controlled Call
ES2000 Hi-8 20X Zm with Stabilizer Call
ES550 8mm Call
ES600 8mm Call
ES800 12X Stabilizer Call
ES750 8mm Stabilizer 699.95
ES80 8mm Call
ES500 8mm Color V.F. Call

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MM-200 Mixing Mike 144.95
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15X Zm Lens 8–120mm 479.95

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CL 2X Extender Call
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Aluminum cases that are foam lined with tongue-and-groove moveable partitions. Two large top sections split apart, each with its own compartments. Hinged locks with keys for extra safety. Available in 2 sizes.

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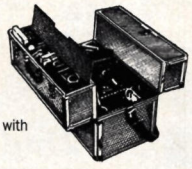

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Attache case type, *heavy duty construction* of anodized aluminum with *reinforced corners.* Carrying strap included. **Weight:** 8.6 lbs.

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SGR Low Angle Tripod Mfg. by TIFFEN

Individually adjustable leg angles adapt to uneven terrain or low level work, as low as 5.5". Handles full size camcorders and medium format cameras. Has center locking brace and quick change camera mount shoe

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SPOTTING SCOPE TELEPHOTO LENS

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97ER 379.95

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22X W.A.Eye Piece 48.95
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77mm ELITE
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15x 45 Angle R/C 354.95
Camera Adapter for Nikon Spotting Scopes 19.95

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16-47 x 60 XL 379.95
16-47 x 60 XL Kit with Tripod & Case 409.95

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7x50 FMTR SX 459.95
7x50 FMTR CSX 519.95
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10x70 FMT SX 509.95
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TSN-3 Flurite 45° 1025.00
TSN-4 Flurite Straight 989.95

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TSN-3 849.00 TSN-4 829.00

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T40x, 25x, 104.95 77x 145.00
30x w.a. 169.00
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12x50 Call 16x50 Call
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UCF Mini
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FRESH FILM AT GREAT SAVINGS!
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ALL FILM GUARANTEED FRESH
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Slide films are now available with ***Kodak*** or ***Fuji*** Pre Paid Processing

KODAK FILM

COLOR PRINT FILM *35mm*

film	ASA	135-24 DI	135-24 Roch.	135-24 Proc. DI	135-24 Proc. Roch.	135-36 DI	135-36 Roch.	135-36 Proc. DI	135-36 Proc. Roch.
GA	(100)	2.19	3.19	8.51	9.51	2.79	3.99	11.48	12.68
GB	(200)	2.79	3.75	9.11	10.07	2.99	4.59	11.68	13.28
GC	(400)	2.99	4.05	9.31	10.37	3.39	4.99	12.08	13.68
Ektar	(25)	3.39	–	9.71	–	4.29	–	13.19	–
Ektar	(100)	2.99	–	8.95	–	2.99	–	11.65	–
Ektar	(1000)	4.25	–	10.57	–	5.49	–	14.08	–
Royal Gold RZ	(25)	-	4.29	-	10.61	-	4.99	-	13.68
Royal Gold RA	(100)	-	3.65	-	9.97	-	4.69	-	13.38
Royal Gold RB	(200)	-	4.35	-	10.67	-	5.39	-	14.08
Royal Gold RC	(400)	-	4.65	-	10.97	-	5.79	-	14.48
Royal Gold RF	(1000)	-	5.59	-	11.91	-	6.99	-	15.68
Special GA 36 50 Pack						112.49	199.95	546.99	634.45

DISPOSABLES

Disposable Camera	without Proc.	with Proc.
KODAK Funsavers		
Funsaver w/o Flash	5.69	13.54
Funsaver w/Flash	9.29	17.04
Panoramic 35	6.95	14.80
Weekend 35	7.89	15.74
Telefoto 35	9.95	17.80
Wedding Pack (5)	42.95	
FUJI Quick Snaps		
Quick Snap	4.99	13.54
with Flash	8.99	16.84
Panorama	8.45	16.34
w/Flash 135-24	14.95	25.74
Water Proof	10.49	18.54

SLIDE FILM *35mm*

	ASA	135-24 DI	135-24 Roch.	135-24 Proc. DI	135-24 Proc. Roch.	135-36 DI	135-36 Roch.	36X w/KODAK PK. DI	36X w/KODAK PK. Roch.	36X w/FUJI P/. DI	36X w/FUJI P/. Roch.
KM	(25)	-	4.15	-	7.54	-	5.65	-	10.04	-	-
KR	(64)	-	4.09	-	7.48	5.55	5.65	9.94	10.04	-	-
Elite EA	(50)	4.25	4.25	7.64	7.64	5.90	6.38	10.29	10.77	9.39	9.87
Elite EB	(100)	3.89	4.49	7.28	7.78	4.29	6.35	8.68	10.74	7.78	9.84
ET	(160)	5.19	5.49	8.58	8.88	6.99	7.49	11.38	11.88	10.48	10.98
Elite ED	(200)	4.99	5.49	8.38	8.88	5.79	7.60	10.18	11.99	9.28	11.09
KL	(200)	-	4.99	-	8.38	-	6.89	-	11.28	-	-
Elite EL	(400)	5.99	6.50	9.38	9.89	6.99	8.79	11.38	13.18	10.48	12.28

Kodalux

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DP-12 .... 4.49 DP-24... 6.32
DPD-12/24 (f/Disposable). 7.85
DP-36..... 8.69
for Slides
PK-12.... 5.59 PK-24..... 3.39
PK-36.... 4.39
ESP-1 *(push)*..... 2.69
PK-59 *(Movie)*..... 5.59
for Posters
PP-121811.99 PP-2030 13.49
Fuji Slide Mailer *(36X)*..... 3.49

PRO COLOR PRINT FILM *35mm* *120/220*

Film	ASA	135-36 DI	135-36 Roch.	36X with PROC. DI	36X with PROC. Roch.	135-36 PP DI	135-36 PP Roch.	36X G.S.	120 Single DI	120 Single Roch.	120 ProPak DI	120 ProPak Roch.	220 ProPak DI	220 ProPak Roch.
PHR	(25)	5.29	5.49	13.98	14.18	–	–	–	3.44	3.95	–	–	–	–
PJA	(100)	2.49	3.57	11.18	12.26	12.45	17.85	–	–	–	–	–	–	–
PRN	(100)	-	5.09	-	13.78	-	25.45	–	-	3.15	-	15.75	-	33.45
GA	(100)	–	–	–	–	–	–	–	2.07	2.99	–	–	–	–
VP	(120)	–	–	–	–	–	–	–	2.09	2.38	–	–	–	–
VPS	(160)	3.55	4.73	12.24	13.42	–	–	2.95	2.67	2.99	13.35	14.95	26.99	29.40
VPL	(160)	–	–	–	–	–	–	–	3.10	3.20	15.50	15.95	–	–
PJZ	(200)	-	4.25	-	12.94	-	21.25	–	–	–	–	–	–	–
PMC	(400)	-	4.99	-	13.68	-	24.95	3.79	-	2.99	–	14.95	-	29.95
VPH	(400)	4.49	5.29	13.18	13.98	23.95	25.95	–	2.59	–	12.95	–	–	–
PJB	(400)	3.79	4.89	12.48	13.58	18.95	24.45	–	–	–	–	–	–	–
PPF	(400)	4.70	5.09	13.39	13.78	23.50	25.45	–	-	2.99	-	14.95	-	29.95
PJC	(1600)	4.79	6.15	13.48	14.84	23.95	30.95	–						

Bulk

100' Rolls
Kodalith
6556 ..... 29.95
5072..... 62.95
5325..... 76.49
VPS 43.85
PMC..... 45.95

VPS 135-24 (160 ASA)	DI	Roch.
	3.29	3.69
with Processing	9.61	10.01

KODAK SHEET FILM

COLOR PRINT	4x5 *10*	4x5 *50*	8x10 *10*	8x10 *50*
4106 (VPS)	15.39	69.90	57.69	–
4108 (VPL)	15.49	70.95	59.95	–
4111 (Vericolor)	9.95	–	34.95	155.95
4112 (VC intrng)	16.49	75.95	61.95	289.95
4325 (Comm Int.)	16.99	69.95	62.95	283.95
4329 (PRN)	15.95	73.95	64.95	–

COLOR SLIDE	4x5 *10*	4x5 *50*	8x10 *10*	8x10 *50*
6117 (64D)	15.69	69.90	57.49	269.49
6118 (64T)	15.40	68.89	57.49	273.49
6121 (DUP)	34.95	62.95	122.95/25	232.95
6105 (EPP)	15.75	71.89	62.50	269.95
7024 (EPZ)	16.95	72.95	–	279.95
7058 (EPN)	15.95	72.95	59.95	279.95
6176 (EPD)	16.75	76.50	64.40	299.95
6146 (LPP)	16.75	76.95	68.95	274.95

BLACK & WHITE	4x5 *25*	4x5 *100*	5x7 *100*	8x10 *25*	8x10 *50*
4147 (PX)	13.70	51.95	82.95	46.95	89.95
4164 (TX)	13.49	51.95	83.95	46.95	89.95
4052 (TMX)	13.95	52.99	81.95	46.95	–
4053 (TMY)	13.70	52.95	86.95	46.50	–
S0339 (DUP)	29.95	–	–	99.95	–
4125 (Copy)	19.95	72.95	119.95	–	134.95
2556 (Ortho)	–	39.95	62.95	100 Sht.	128.95
4143 (HIE)	41.95	–	–	–	–
4415 (TP)	30.95	–	–	102.95	–

4x5 READY LOAD (20 Sheets)	
64T (64)	43.95
EPP (100)	44.95
PRN (100)	47.95
TMX (100)	35.95
Ready Load Holder	46.99
HP Combo Plan T Sys.	43.95

at ADORAMA You will find the right film for your specific photographic need

PRO SLIDE FILM *35mm* *120/220*

	ASA	135-36 DI	135-36 Roch.	GS	36X w/KODAK PROC. DI	36X w/KODAK PROC. Roch.	36X w/FUJI PROC. DI	36X w/FUJI PROC. Roch.	120 Single DI	120 Single Roch.	120 ProPak DI	120 ProPak Roch.	220 ProPak DI	220 ProPak Roch.	Bulk 100'
PKM	(25)	6.79	7.00	–	11.18	11.39	10.28	10.49	–	–	–	–	–	–	–
KPA	(40)	–	7.95	–	–	12.34	-	11.48	–	–	–	–	–	–	–
EPY	(64)	5.40	7.15	4.59	9.79	11.54	8.89	10.64	3.15	3.79	–	–	–	–	73.49
EPR	(64)	5.29	7.15	4.49	9.68	11.54	8.68	10.64	2.95	3.90	14.75	19.50	38.90	39.95	71.49
EPX	(64)	5.75	7.15	–	10.14	11.40	8.78	10.64	3.59	3.99	17.95	19.95	–	–	–
PKR	(64)	6.64	7.15	–	11.03	11.35	10.13	10.64	4.29	4.69	9.88	10.28	←120 w/Processing		
EPN	(100)	6.25	7.87	5.29	10.64	12.26	9.74	11.36	4.15	4.35	20.75	21.75	42.40	44.49	79.49
EPP	(100)	5.95	7.87	5.09	10.34	12.26	9.54	11.36	3.29	4.27	16.45	21.35	38.89	43.95	77.25
EPZ	(100)	6.19	7.75	–	10.38	12.14	9.68	11.24	4.19	4.27	18.49	21.35	41.95	44.49	–
LPP	(100)	–	6.89	5.59	–	11.28	–	10.38	–	4.29	–	21.45	-	44.00	94.95
LPZ	(100)	–	6.89	–	–	11.28	–	10.38	–	4.29	–	21.45	-	44.00	–
EPT	(160)	6.49	8.59	5.49	10.88	12.98	9.98	12.08	3.79	4.80	18.95	24.00	–	–	79.90
EPD	(200)	6.75	8.63	5.49	11.14	13.02	10.24	12.12	3.65	4.69	18.25	23.45	46.40	49.95	79.49
PKL	(200)	8.59	8.70	–	12.98	13.09	12.08	12.19	–	–	–	–	–	–	–
EPJ	(320T)	8.29	9.70	7.25	12.68	14.09	11.78	13.19	–	–	–	–	–	–	114.50
EPL	(400)	7.74	9.97	6.95	12.13	14.36	11.23	13.46	4.95	5.95	24.70	– 29.75	–	–	115.95
EPH	(1600)	9.15	10.59	–	13.55	14.98	12.65	14.08	–	–	–	–	–	–	–
S071	(DUP)	-	6.19	4.19	-	10.58	-	9.94	–	–	–	–	–	–	39.45
HCS	(EKTA)	-	4.95	–	-	9.34	-	8.04	–	–	–	–	–	–	–
S0366		-	6.49	–	-	10.88	-	10.08	–	–	–	–	–	–	57.99
S0279		-	6.20	–	-	10.59	-	9.78	–	–	–	–	–	–	–
IE		–	15.95	–	–	–	–	–	–	–	–	–	–	–	–

BLACK & WHITE FILM *35mm* *Prof. 120/220*

	ASA	135-24 DI	135-24 Roch.	135-24 Proc. DI	135-24 Proc. Roch.	GS 36	135-36 DI	135-36 Roch.	135-36 Proc. DI	135-36 Proc. Roch.	120 DI	120 Roch.	120 PP DI	120 PP Roch.	220 PP DI	220 PP Roch.	Bulk 100'
PX	(125)	1.99	2.57	8.31	8.89	2.09	2.59	3.39	11.28	12.08							
PXP	(125)	–	–	–	–	–	–	–	–	–	–	–	12.65	13.89	25.95	26.95	24.50
TXP	(320)	–	–	–	–	–	–	–	–	–	–	–	12.75	13.49	25.19	25.49	–
TX	(400)	2.04	2.56	8.36	8.88	2.19	2.79	3.39	11.48	12.08	1.89	2.39	–	–	–	–	28.25
TMX	(100)	2.14	2.62	8.46	8.94	2.29	2.76	3.49	11.45	12.18	2.04	2.39	10.20	11.95	–	–	24.50
TMY	(400)	2.19	2.76	8.51	9.08	2.49	2.99	3.69	11.68	12.38	2.04	2.51	10.20	12.55	–	–	29.50
TMZ	(3200)	–	–	–	–	–	3.89	4.40	12.58	13.09							
TP	(Copy)	–	–	–	–	–	5.29	5.49	–	–	4.29	4.46	–	–	–	–	–
HIE		–	–	–	–	–	6.27	6.99	–								

SPECIAL TX-36 PROPAK (50 ROLL)..... **127.95** PROPAK U.S.A. **175.00**

FUJI FILM

FUJICHROME SLIDE FILM *35mm*

	ASA	24X	24X w/Proc.	36X	36X w/Processing by Fuji	36X w/Processing by Kodak
RD Sensia	(100)	2.99	6.38	4.29	7.78	8.68
RM Sensia	(200)	3.49	6.88	4.89	8.38	9.28
RH Sensia	(400)	5.59	8.98	6.39	9.88	10.78

FUJICHROME PROFESSIONAL SLIDE FILM

	ASA	35mm 36X	36X w/Processing by Fuji	36X w/Processing by Kodak	GS 36X	120	220	Bulk 100'
RVP Velvia	(50)	5.99	9.48	10.38	4.99	3.79	8.39	79.49
RTP	(64)	6.29	9.78	10.68	4.99	3.59	–	72.95
RDP	(100)	5.99	9.48	10.38	–	3.89	7.59	79.95
RDP II Provia	(100)	6.59	10.08	10.98	5.99	3.99	8.95	79.49
RHP Provia	(400)	7.79	11.28	12.18	6.99	4.99	–	103.89
RSP Provia	(1600)	9.39	12.88	13.78	–	–	–	–

FUJICHROME RVP VELVIA 135-24..... **4.75** 24X w/Proc. **8.14**

SHEET FILM		4x5 10	4x5 50	8x10 10	8x10 50
RVP Velvia	(50)	16.99	75.85	62.89	291.49
RTP	(64)	14.95	67.49	57.95	257.95
RDP II Provia	(100)	17.49	78.90	64.95	299.95
NPS	(160)	15.29	69.95	56.95	–
NPL	(160)	15.39	69.95	56.95	–
CDU Duplicating		–	64.95	–	239.49
ITN Internegative		16.89	74.95	61.95	278.95

FUJI QUICK LOAD
RDP II Provia ....**49.95** **RVP** Velvia.....**51.95**
RTP 64T **48.95**
Fuji Quick Load Film Holder.....**107.95**

FUJICOLOR PRINT FILM

	ASA	35mm	35mm w/p	35mm 36x	35mm w/p	Roll Film 120	Roll Film 220	100' Bulk
CN	(100)	1.89	8.21	2.19	10.79	2.19	—	—
Super G Plus	(100)	2.79	9.11	3.29	11.98	—	—	—
CA	(200)	2.06	8.38	2.42	11.11	—	—	—
Super G	(200)	—	—	3.60	12.29	—	—	—
Super G Plus	(200)	3.39	9.71	3.99	12.68	—	—	—
CH	(400)	2.59	8.91	3.69	12.38	2.69	—	—
Super G Plus	(400)	3.79	10.11	4.59	13.28	—	—	—
Super G (CZ)	(800)	—	—	4.99	13.68	—	—	—
CU	(1600)	3.40	9.72	5.19	13.88	—	—	—
CS Realle		2.63	8.95	3.39	12.08	2.59	6.09	—
FUJICOLOR PRO PRINT FILM								
NPS	(160)	GS 36X 3.59		4.59	13.28	2.69	6.09	39.95
NPL	(160)	—						
—	—	—	3.09	–	–			
NEW-NPH	(400)	—	—	5.99	14.68	3.79	6.99	–
NHG	(400)	—	—	4.29	12.88	3.05	6.57	–
FUJI PRO BLACK & WHITE FILM								
Neopan	(100)	–	–	2.19	10.88	–	–	–
Neopan	(400)	–	–	2.59	11.28	2.14	–	32.20
Neopan	(1600)	–	–	3.79	12.48	–	–	–
CDU Duplicating		GS 36X 3.49				–	–	39.69
ITN Internegative		-			–		–	70.95

POLAROID

Captiva, Single (10)..... **9.99** Spectra HD (10)..... **9.29**
Time Zero (SX70) (10)..... **9.99** 600 HD (10) **9.29**

INSTANT PACK FILM 3¼X4¼
88 Single (8)..... **9.80** 108 Single (8) **9.60**
665 Single (8)..... **8.99** 669 Single (8) **9.49**
667 Single (10)..... **7.99** 691 Single (8)..... **11.75**
Pro 64T Twin (16)..... **19.20** Pro 100 Twin (16)... **17.98**
New Pro Vivid 689 (10)..... **13.89**
Polapan Pro 100 / 664 Twin (20)..... **17.50**
Fuji FP 100C (10) **14.49**

PACK FILM 4x5 (Images)
552 (8)..... **13.75** 552 Bulk (240) **379.95**
553 (8)..... **13.85** 554 (8)..... **13.75**
559 (8)..... **21.65** 559 Bulk (240)..... **615.95**

PRO 4x5 Instant Film (20 / 200)
52..... **33.15 /** Polapan 400.....**34.50/329.**
53 ..... **34.69 /** Polapan 100.....**34.49/329.**
55 ..... **35.60 / 339.** 57..... **34.75/ —**
59..... **52.95 / 499.** Polacolor 64 T..**56.75/**
Polacolor Pro 100 ....**56.75 / 529.**

SHEET FILM 8x10 (Images)
803 (15) ..... **119.95** 804 (15) **112.95**
New 809 (5)..... **49.95** . 809 (45)..... **329.00**
809 (15)..... **119.95**

POLAROID 35mm AUTOPROCESS SYSTEM

35mm Power Processor **237.95**
35mm Auto Processor **94.95**
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Slide Mounter **14.95**
Slide Mounts (100) **5.99**
Vivitar Slide Printer **89.95**

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Kodak **Ea. .99** 100 pcs. **93.95**
Plastic **Ea. .45** 100 pcs. **39.95**
Metal **Ea. .33** 100 pcs. **29.95**

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WATSON Bulk Loader **14.95**
LLOYDS Bulk Loader **21.95**
Alden Bulk Loader **23.95**

POLAROID INSTANT SLIDE FILM

	135-12	135-36
Polagraph(HC)	9.50	—
Polapan(CT)	9.15	14.79
Polachrom(CS)	9.89	14.79
HCPlchr(HCP)	10.70	—
Polablue(BN)	10.99	—

FILM ACCS.
Film Leader Retriever **4.95**
Cassette Labels (25) **2.50**
X-Ray Film Shield (22) **9.50**
X-Ray Film Shield Jumbo (60) **17.95**
Cordura Film Guard (60) **29.95**

ILFORD

35mm	ASA	24 Exp.	36 Exp.	36X G.S.	120	Bulk 100'
PanF Plus	(50)	—	3.19	2.69	2.15	29.95
FP4 Plus	(125)	2.09	2.69	2.09	1.99	24.95
XP-2	(400)	2.49	2.99	2.39	1.90	33.65
HP-5 Plus	(400)	1.95	2.80	2.09	1.99	29.89
Delta	(100)	2.49	3.29	—	2.49	35.95
Delta	(400)	2.49	3.29	2.79	2.49	35.95

ILFORD SHEET FILM

		4x5 25	4x5 100	8x10 25	220 ProPak
FP4 Plus	(125)	12.25	47.49	43.95	25.95
HP5 Plus	(400)	12.25	47.49	43.95	25.69
XP-2	(400)	14.90	57.89	49.79	—
Delta 100	(100)	13.95	53.95	46.95	—
Delta 400	(400)	13.95	53.95	46.95	25.95
ORTHO		12.49	—	47.95	—

KONICA

	24X	Print Film w/Proc.	36X	w/Proc.	120
Super XG 100	1.99	8.31	2.19	10.94	2.55
Super XG 200	2.99	9.31	3.93	12.62	
Super XG 400	3.46	9.78	4.41	13.10	3.11
		ProPrint			
SRG 160	3.19	9.51	4.09	12.78	2.69
SRG-3200	6.19	11.51	7.49	16.18	5.09
Impessa (50)	3.95	10.27	4.95	13.64	3.69
Infrared 750	5.39				6.95
SRG 160 220 PP.....	25.95	Chrome R 100 Film - 36X.....			3.39

Scotch 3M

Color Slide Film	135-36	w/Proc.
Scotch 100	3.39	6.88
Scotch 400	4.99	8.48
Scotch 640 T	6.49	9.98

AGFA

AGFACHROME

RSX Chrome	ASA	135-36	120
RSX 50 Plus	(50)	6.09	3.79
RSX 100 Plus	(100)	6.79	4.19
RSX 200 Plus	(200)	7.39	4.59
CTX 100	(100)	5.39	–
CTX 200	(100)	5.89	–

AGFAPAN Black & White
25-100-400

	135-36X	120
	3.29	2.29
100-400 (97 ft.).....	23.95	
SCALA 200		
ORTHO (25 ASA) 36X.....3.59	135-36X 9.95	120 6.95

AGFAPRINT

Print	ASA	135-24	135-36	120	220 PP
HDC100	(100)	3.09	3.95	—	—
HDC200	(200)	3.49	4.49	—	—
HDC400	(400)	3.69	4.89	—	—
Optima 100		3.79	4.79	3.39	—
Optima 200		4.09	5.39	3.89	—
Optima 400		4.49	5.29	4.39	33.95
Ultra	(50)	3.99	4.60	3.49	—
Portrait	(160)	3.99	4.60	3.39	33.95

SHORT DATED AND OUTDATED FILM SPECIALS

Polaroid Film	*Date*	*Price*
Polaroid Polapan 400 4x5 (20)	10/94	**6.99**
Polaroid Polapan 400 4x5 (20)	12/94	**7.99**

35mm Slide Film	*Date*	*Price*
Fujichrome RF 50 ASA 24X	8/95	**1.89**
Sheet Film		
Fuji RVP Velvia 4X5 / 10 Sheets	1/96	**11.99**

Save on short dated and outdated film. Quantities are limited and sold on first come first sold basis.

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Film

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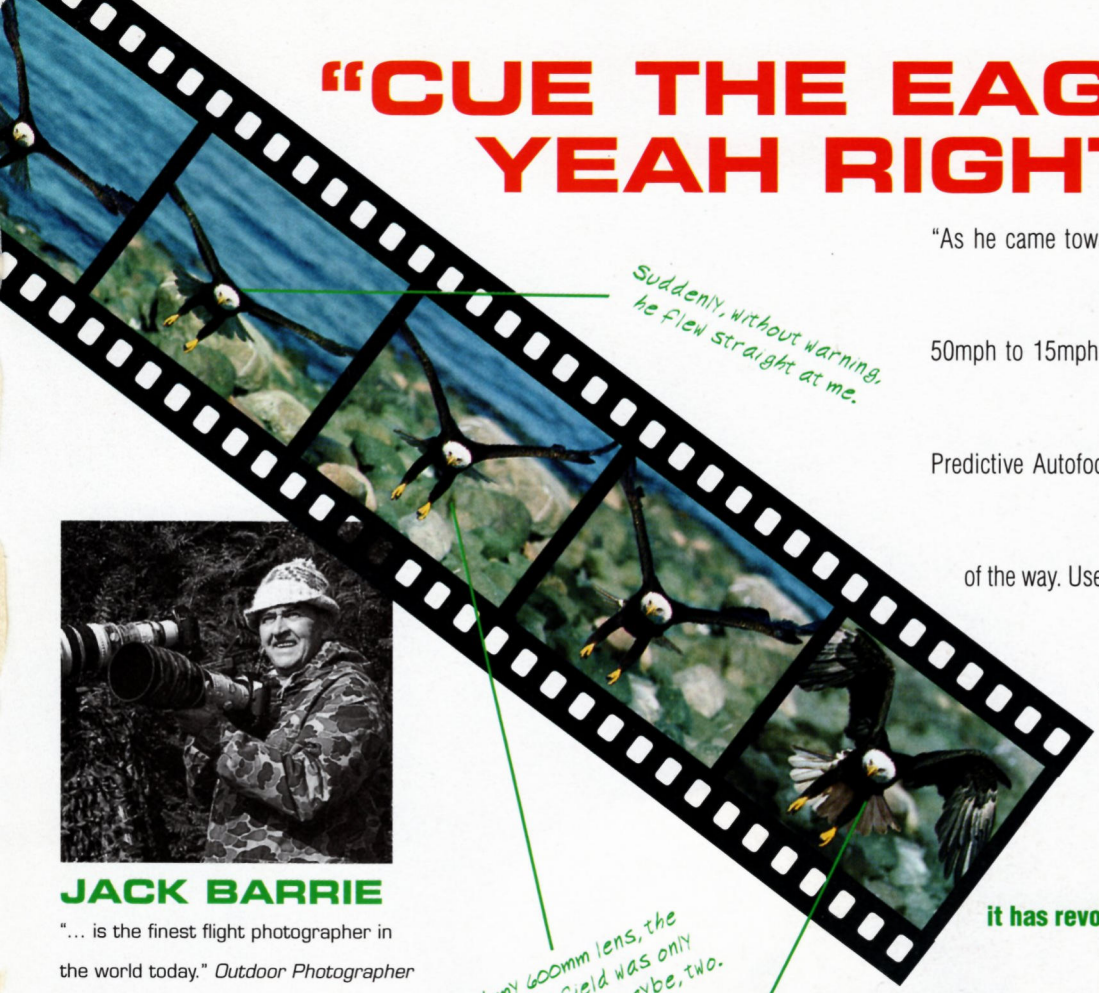
LAST FRAME

FROG BABY PLAYGROUND:

The heliconia flower, common throughout Central and South America, is a beautiful sight at any time of day. Photographer Michael Evan Sewell (Peter Arnold Inc.) returned to this flower one night to create a dramatic, studio-like flash image and found the area crawling with red-eyed tree frogs. These are babies, recently transformed from tadpoles swimming in pockets of water trapped in the flowers and leaves of this Belize rainforest plant.

Nikon N90, Nikkor 80-200mm *f*/2.8 zoom with extension tubes, Nikon SB-25 Speedlight with Lumiquest softbox, Fujichrome Velvia

"CUE THE EAGLE!" YEAH RIGHT.



Suddenly, without warning, he flew straight at me.

With my 600mm lens, the depth-of-field was only about an inch — maybe, two.

Before I ducked I fired a burst of photographs. Every one was dead bang on!

JACK BARRIE

"... is the finest flight photographer in the world today." *Outdoor Photographer*

"World's foremost photographer of wild birds in flight." *Birds of the Wild*

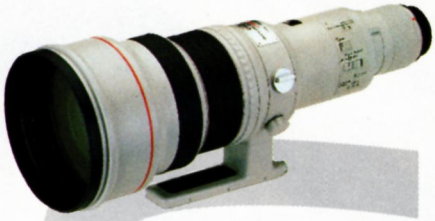
"As he came toward me, he slowed from about 50mph to 15mph. Didn't fool my EOS-1N -- the Predictive Autofocus stayed with him every inch of the way. Used to be, the shots I remembered were the shots I blew. No more.

Since I switched to EOS it has revolutionized my photography.

This camera is worth ten years' experience shooting wild birds." Compatible with over 40 EF lenses, no wonder more and more pros are realizing now it's Canon.

EOS-1N

EF 600mm f/4.0L USM



EOS

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